



Report to the Legislature

**The Prevalence of Serious Mental Illness in
Washington State**

Chapter 7, Laws of 2001, E2
Section 204(5)(c)
Chapter 25, Laws of 2003, E1
Section 204(5)(b)

December 1, 2003

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Acknowledgements

The Mental Health Division is indebted to the members of the Prevalence Advisory Committee (PAC), who played a central role in every step of this project. The individuals listed in Appendix A are a dedicated group of mental health professionals and advocates. Although the issues were sometimes contentious and passions ran high, decency and civility always prevailed. The success of this project is directly attributable to the contributions of this group. We also want to thank the agencies which supported the participation of PAC members without reimbursement. They generously donated staff time and travel costs to support this effort.

Also vital to this project were the guidance and support offered by our panel of national experts. All gave willingly of their time and expertise. Of particular note, Dr. Charles Holzer at the University of Texas Medical Branch in Galveston handled much of the statistical and conceptual "heavy lifting" that this study required. He continues to work with us as we follow up with concerns and questions raised by the study. His contributions are particularly noteworthy. In addition to providing guidance and expertise as one of our expert panelists, Dr. Ron Manderscheid at the Center for Mental Health Services at SAMHSA provided logistics and meeting support that is much appreciated.

Aspects of the study required assistance from mental health administrators, providers, and other state, regional, and county representatives. Cathy Gaylord and Ann Christian at the Washington Council of Community Mental Health Centers provided substantive support in conducting the Community Residential sub-study. In the Homelessness Survey, we interviewed a large number of folk who freely shared their time and expertise to convey their knowledge of homelessness issues in their communities. Thanks to all who helped us understand the homelessness issues in the different areas of the state. Their information, perspective, and insights regarding homelessness and mental illness were very helpful in an arena where we have little data to guide us.

This study also benefited from the active participation of graduate students from Washington State University-Spokane. We are indebted to Dennis Dyck, Associate Dean at WSU-Spokane, for sharing these young scholars with this project. Of particular note, Michael McDonell, Chris Berry, Nick Hazel, and Martina Rodgers were of invaluable aid to this study.

Finally, we would like to acknowledge the work of Christina Carter. Christina carried much of the load in organizing meetings, typing, and correspondence. Her efforts were key to the project's success.

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Executive Summary

This report is the Mental Health Division (MHD) response to Chapter 7, Laws of 2001, E2, Section 204(5)(c) and Chapter 25, Laws of 2003, E1 Section 204(5)(b). That legislation mandated that a study "shall examine how reasonable estimates of the prevalence of mental illness relate to the incidence of persons enrolled in medical assistance programs in each regional support network area."

To meet this charge, the Department of Social and Health Services (DSHS) MHD convened a Prevalence Advisory Committee (PAC), consisting of Regional Support Network (RSN), provider, consumer, research, and Joint Legislative Audit Review Committee (JLARC) representatives. This group met monthly with project staff for two years to design the study, guide implementation, and review results. In addition, MHD convened an Expert Panel, consisting of leading mental health epidemiology researchers that reviewed study issues and assisted in design, implementation, and interpretation. Working with project staff, PAC and the Expert Panel first identified project goals and decided upon groups for further study to develop reasonable estimates of the prevalence of serious mental illness (SMI) in adults and serious emotional disturbance (SED) in children.

The development of the study plan and the results of a series of ten separate sub-studies are detailed in Chapters 1 through 9 of the full report. The last chapter of the full report integrates the results of all studies, compares results to other prevalence studies, examines how these estimates relate to Medicaid eligibility, and makes recommendations for future studies.

This study revises a prior study looking at the prevalence of mental illness in Washington State. The 1998 study, Prevalence Estimation of Mental Illness and Need for Services (PEMINS) study, used a telephone survey of approximately 7,000 Washington residents to calculate prevalence estimates statewide, by county, and by region. The current study (hereafter referred to as PEMINS 2000) differs from the 1998 PEMINS study in four major respects:

- It is based on the most current full U.S. Census (2000).
- Separate smaller studies were conducted to produce estimates for several non-household target groups overlooked or underestimated in the original PEMINS study. These results are added to the household prevalence estimates to estimate the prevalence of SMI in all adults.
- Estimates for children with SED are included.

- Race and ethnicity were used as predictors in the earlier study to generate estimates by region and county for 1998. Race and ethnicity were removed as predictors from estimation equations in the current study. This decision by PAC results from an extensive literature review that did not reveal any significant differences in the prevalence of SMI in minority populations or ethnic groups.

Methodology

Preliminary discussions of the first PEMINS study led PAC to focus on three areas of concern:

- *Groups requiring more specific estimates*, such as the homeless and those living in institutional settings.
- *Groups not specifically addressed in PEMINS 1998*, including children, minorities, immigrants, and refugees who may not have been adequately counted in the household survey.
- *Drift*. The possibility that persons with mental illness may move for reasons related to the location of social and mental health services, or access to those services, resulting in disproportionate numbers in some regions.

The following target groups were identified for further study: children, the homeless, jail and prison populations, children in juvenile facilities, hospital populations, and residents of rehabilitation and group homes in communities. Each target group study is presented as a chapter in this report.

PAC developed a plan with the following steps:

- Recalculate PEMINS 1998 household estimates using current 2000 U.S. Census data.
- Use the research literature and conduct additional studies where needed to develop specific prevalence rate estimates for each target group.
- Add the target group calculations for each RSN to the revised household estimates (PEMINS 2000) to generate prevalence estimates for each RSN.
- Address additional groups of interest in the report.

Serious Mental Illness Operationally Defined

PEMINS 1998 had provided regional estimates according to 13 different models of mental health need that varied according to diagnosis and functional impairment. PAC decided that the populations served by the RSNs, and the mandate of the enabling legislation, were most closely matched by the following medium-band definition of mental health need used in the original PEMINS study:

Respondent has a **major disorder** (such as depression, psychosis, or manic episodes) **and** meets **at least one** of these additional criteria:

- Functional limitation that limits major life activities, ability to work, or taking care of personal needs such as bathing;
- Mental health (MH) services use or desire for MH services;
- Danger to self or others;
- Dependence, i.e., inability to support one's self or provide for one's own medical care.

More detail on definitions of mental illness is offered in Chapter 2 of the report.

Other Groups Considered

A few groups were the focus of extensive PAC discussions, but no effective methodology was adopted to estimate their influence on prevalence rates. These groups were not studied further because of a lack of published SMI estimates or population estimates or both. The resources that would have been required to study these groups would have far exceeded the resources of the current study. These included migration and drift of mentally ill persons, recent immigrants, and race and ethnic issues in prevalence studies. These are addressed in more detail in Chapter 9 of the full report and are summarized briefly below.

Results

PEMINS Recalculations

The current study applied the methodology of PEMINS 1998 to U.S. Census 2000 data. In addition, PAC requested that MHD staff work with Dr. Charles Holzer of the Psychiatry and Behavioral Sciences Department at the University of Texas Medical Branch in Galveston, Texas to produce alternative household prevalence estimates:

- PAC requested separate estimates for all households and for households with incomes at or below 200% of the Federal poverty level (FPL) as a proxy measure of those in need of public mental health services.
- PAC requested results from estimation models that excluded race and ethnicity as predictors in estimation equations.

Household and Target Group Estimates

Results of this analysis indicate that rates of SMI in households increased slightly between 1998 and 2000. Using race-neutral methods led to higher estimates of household rates. The following conclusions are drawn from these analyses:

- Choice of estimation method made little difference to each Regional Support Network's proportion of the total number of persons with serious mental illness (hereafter called shares), except for King County.
- RSN shares remained relatively stable between the 1998 and 2000 estimates.
- RSN shares of persons with mental illness in households closely tracked each RSN's share of the total state population.
- Using proportions of the state population as the standard, shares of persons with mental illness in households at <200% of FPL were disproportionately high for Greater Columbia and North Central RSNs. King County and North Sound RSNs showed disproportionately low shares, with the effect being marked in King County.

Following the study plan developed by PAC, the race-neutral household prevalence estimates from PEMINS 2000 were combined with target group estimates to yield prevalence counts, by RSN, displayed in Table ES.1. The total number of persons with SMI/SED (all income levels) was estimated at **295,884**, compared to 157,070 estimated for adults in households and institutions by the original (PEMINS 1998) study. Accounting for most of this gain was the addition of **105,969** children with SED, and some increase in the institutional and homeless estimates of persons with SMI. Combining the estimated number of adults with SMI in households with incomes at or below 200% FPL with estimates of the number of children with SED living in households at or below 250% FPL, and the relevant target group estimates, yields a total of **148,732** persons likely to be dependent upon publicly supported mental health services. The estimates for each RSN are shown in Table ES.1.

Comparisons with Other Estimates

Table ES.2 compares results of this study with those from other recent studies of the prevalence of SMI in Washington State and with the number of Medicaid Eligibles:

- *Blueprints for an Effective Mental Health System in Washington State* (Blueprints), produced by the Washington Community Health Council worked in conjunction with NAMI Washington (2000).
- The number of Medicaid Eligibles as calculated for MHD financial services purposes.

The data presented in Table ES.2 are percentages of all known cases, to provide a common metric for comparing the studies. The bottom row of the table contains the statewide population counts for each method. The first two data columns present a comparison of the general population prevalence results of this study and the Blueprints study. This study identified 11% fewer cases, likely due to more restrictive criteria for identifying adults with serious mental illness. The relative shares for the RSNs are very similar between the two studies.

The next two columns of Table ES.2 compare these two studies by the percent of persons who meet FPL criteria for Medicaid (or very similar criteria) and who are SMI/SED. These percentages and the actual counts on which they are based serve as a proxy estimate of persons needing public mental health services. This study estimates **148,732** persons in this category, compared to **133,406** in Blueprints. The next column indicates the distribution of the **829,508** Medicaid Eligibles across the RSNs. The last column indicates each RSN's percentage of the state population (2000 Census data).

Most RSN shares of total SMI populations closely track their shares of the state population. It was noted above that among households at or below 200% FPL, King County and North Sound had disproportionately low shares, while North Central and Greater Columbia had disproportionately high shares. These disproportions were attributed to regional differences in employment and income levels. The addition of estimates from the target groups dampened but did not eliminate these disproportionate shares. By disproportionate, we mean that they deviate from population proportions, not that they are suspect.

Table ES.1
Integration of Estimates from All Studies

RSN	Household Estimate ¹	Target Group Studies						Total Estimated Number of SMI
		Community Residential ²	Jails and Prisons ³	Homeless ⁴	Incarcerated Children ⁵	State Hospitals ⁶	Children ⁷	
Chelan-Douglas	2,588	194	73	98	22	26	1,977	4,978
Clark County	9,487	363	218	375	39	78	6,929	17,489
Grays Harbor	1,924	112	53	66	15	33	1,208	3,411
Greater Columbia	15,348	837	447	599	83	146	12,084	29,544
King County	52,941	3,254	1,025	2,793	144	642	27,345	88,144
North Central	3,357	251	94	129	25	40	2,835	6,731
North Sound	25,730	1,425	469	949	119	259	17,808	46,759
Northeast	1,872	97	34	68	7	21	1,337	3,436
Peninsula	8,870	382	171	350	34	113	5,696	15,616
Pierce County	19,442	1,537	548	944	109	335	13,340	36,255
Southwest	2,598	104	114	92	20	44	1,743	4,715
Spokane County	11,936	1,047	220	1,295	26	239	7,525	22,288
Thurston-Mason	7,180	253	211	253	62	69	4,490	12,518
Timberlands	2,420	170	107	92	25	27	1,652	4,493
Other/Unknown	0	0	43	0	0	4	0	47
Total	165,154	10,025	3,826	8,104	730	2,076	105,969	295,884

¹ PEMINS 2000 estimate of the number of household members who meet criteria for SMI (Medium Need- Race Neutral Method). With the indirect estimation method employed in the PEMINS studies, the model is applied to each RSN and to the state totals separately. This results in small differences between the statewide PEMINS totals and the sum of the values for each of the 14 RSNs. See Chapter 2 for description of how estimates were derived.

² See Chapter 8 for study details.

³ Based on Jail Average Daily Population data provided by the Washington Association of Sheriffs and Police Chiefs for calendar year 2001 and prison data provided by the State of Washington Department of Corrections Planning and Research Section for June 30, 2002; applies rate of 12% to jail population and 15% to prison population (see Chapter 5).

⁴ Uses estimate of 35% applied to estimated number of homeless based on one-night-counts and a Key Informant Survey (see Chapter 4).

⁵ Uses estimate of 60% applied to data provided by the State of Washington Juvenile Rehabilitation Administration for calendar year 2001. Does not include youth in community facilities or tribally adjudicated youth (see Chapter 6).

⁶ Applies estimate of 100% prevalence for all persons in beds on May 29, 2002. See Chapter 7 for description of how estimates were derived.

⁷ Source: Census 2000, SF-1 data file, 100% data, applying a rate of 7%. See Chapter 3 for description of how

**Table ES.2
Comparison of Estimates**

RSN	Estimated SMI (Households-Race Neutral) + MiniStudies¹	SMI Estimates from Blueprints	PEMINS SMI <200/250% FPL + MiniStudies¹	# Needing Public MH Services (Blueprints)	Number of Medicaid Eligibles	WA State Population
Chelan-Douglas	1.7%	1.7%	2.0%	1.6%	2.1%	1.7%
Clark County	5.9%	5.7%	5.8%	5.7%	6.1%	5.9%
Grays Harbor	1.2%	1.3%	1.3%	1.3%	1.7%	1.1%
Greater Columbia	10.0%	11.0%	11.4%	11.0%	14.9%	10.2%
King County	29.7%	28.2%	26.6%	28.2%	21.2%	29.5%
North Central	2.3%	2.4%	2.8%	2.6%	3.9%	2.2%
North Sound	15.8%	15.7%	15.1%	15.6%	13.9%	16.3%
Northeast	1.2%	1.3%	1.3%	1.3%	1.8%	1.2%
Peninsula	5.3%	5.4%	5.3%	5.4%	4.7%	5.5%
Pierce County	12.2%	12.5%	12.5%	12.4%	12.2%	11.9%
Southwest	1.6%	1.7%	1.7%	1.7%	2.1%	1.6%
Spokane County	7.5%	7.4%	8.4%	7.3%	8.9%	7.1%
Thurston-Mason	4.2%	4.2%	4.2%	4.2%	4.0%	4.4%
Timberlands	1.5%	1.7%	1.7%	1.7%	2.2%	1.6%
Other/Unknown	0.0%	0.0%	0.0%	0.0%	0.4%	0.0%
Total	295,884	331,617	148,732	133,406	829,508	5,894,121

SMI Estimates and Medicaid Eligibility

In looking at the relationship between the number of Medicaid Eligibles and various prevalence estimates, the following conclusions can be drawn:

- The addition of the target groups, while increasing the overall number of individuals estimated to have SMI or SED, results in very little change to the relationship between the proportion of individuals with SMI/SED and the proportion of Medicaid Eligibles.
- For most RSNs, the proportion of individuals with SMI/SED and the proportion of Medicaid Eligibles show a very close association. The exceptions are King RSN, Greater Columbia RSN, and to a lesser extent North Central RSN and North Sound RSN.

The difference in the shape of the distributions can also be represented in terms of the ratio of Medicaid Eligibles to SMI in each region. These ratios are presented in Table ES.3.

Table ES.3
Ratios of Medicaid-Eligible Persons to Estimates of Persons with SMI, by RSN

RSN	All SMI	SMI <200/250% FPL	Medicaid Eligibles	Elig:SMI	Elig:SMI <200/250% FPL
Chelan-Douglas	4,978	2,902	17,282	3.5	6.0
Clark County	17,489	8,613	50,556	2.9	5.9
Grays Harbor	3,411	1,906	13,885	4.1	7.3
Greater Columbia	29,544	16,945	123,341	4.2	7.3
King County	88,144	39,477	176,077	2.0	4.5
North Central	6,731	4,158	32,372	4.8	7.8
North Sound	46,759	22,376	115,091	2.5	5.1
Northeast	3,436	1,959	14,867	4.3	7.6
Peninsula	15,616	7,935	38,741	2.5	4.9
Pierce County	36,255	18,628	101,139	2.8	5.4
Southwest	4,715	2,519	17,599	3.7	7.0
Spokane County	22,288	12,425	73,500	3.3	5.9
Thurston-Mason	12,518	6,262	33,396	2.7	5.3
Timberlands	4,493	2,485	18,132	4.0	7.3
Total	295,884	148,732	829,508	2.8	5.6

Table ES.3 shows the considerable variation in ratios of Medicaid Eligibles to SMI, ranging from a low of 2.0 in King County to a high of 4.8 in North Central RSN. For example, in King County RSN there are two Medicaid Eligibles for every SMI/SED person in the general population. There are 4.5 Medicaid Eligibles in King County RSN for every person with SMI or SED that met the FPL criteria for the study (200% for adults, 250% for children). These variations help describe the shifts in percentages between King County and Greater Columbia that were demonstrated in Table ES.2.

The percentages or shares of the total in Table ES.2 provide information about the relative proportion of the population estimated to be in each RSN. The ratios in Table ES.3 provide additional information about the relationship between Medicaid eligibility and prevalence of SMI/SED. Closer examination of ratios sheds additional light by showing that the relationship between Medicaid eligibility and serious mental illness is more complex than just the share-of-total issue.

Some RSNs, King County primarily and to a lesser extent North Sound, have lower ratios of Eligibles to SMI than do other RSNs. This could be interpreted to mean that Medicaid eligibility is not a good proxy for these regions as it may underestimate the prevalence of SMI/SED in these regions. Visual inspection of these data suggests a

linear relationship between size (in terms of population) and these Medicaid-to-SMI ratios.

Similarly, the rural RSNs, consisting primarily of counties known to have lower median incomes and more poverty, tend to have higher ratios. This does not necessarily mean they have fewer persons with SMI/SED, but due to economic issues in the region, they may have more persons who are eligible for Medicaid. It may be that they simply have higher proportions that are eligible for Medicaid for economic reasons rather than being eligible due to disability. It might prove fruitful to look closer at the subtypes of Medicaid eligibility to determine whether threshold criteria reflecting disability as well as economic status might more closely reflect the rates of SMI/SED found in this and other prevalence studies.

Conclusions and Recommendations

The results of this study provide reasonable estimates of SMI and SED in Washington State and address the relationship of these estimates to the number of Medicaid Eligibles in the state. These were the primary purposes of the study.

In a recent article by David Mechanic (2003) on the use of prevalence estimates as a measure of need for services, parity, and the expert management of mental health benefits, he states, “it is an illusion to believe that we can avoid muddling through to some extent. The hope is that we can do so thoughtfully.” This serves as a good summary of the efforts of the current study over the last two years. We did muddle through—there was little to guide us. However, we did so thoughtfully. PAC, the Expert Panel, and project staff grappled with the issues, debated perspectives at every step, and sought solutions within our budget. The estimates generated, while not perfect, represent significant progress. All participants learned much from participation in this study. The following recommendations are offered to guide future efforts.

1. Conservative, transparent and defensible prevalence estimates are critical for studies that use complex estimation methodologies and when the results may be used in policy, planning, and funding decisions. This yardstick is recommended for future efforts to estimate prevalence in Washington State.
2. Studies in which results might be contentious or challenged should engage a stakeholder group and provide real opportunity for input. The active participation of PAC in this study was invaluable in guiding the process. Much was learned and a common conceptualization of the issues emerged, which informed the resulting product. We would urge participation by stakeholders at all levels in future studies.

3. When key data are going to be used in policy and resource allocation decisions, regenerating estimates every two or three years is advisable, especially when methods depend upon shifting demographic data, such as economic indicators. New methods, federally funded studies, and routine data collection activities are evolving rapidly and are quickly disseminated. Revisiting studies periodically can capitalize on these enhancements. This can be done cost-effectively if the focus is maintained on easily accessible aggregate data from unbiased sources such as the Office of Financial Management, U.S. Census Bureau, and a variety of other Federal, state, and local data repositories.

Revisiting the topic regularly will continue to contribute to the sophistication and understanding of all stakeholders. The use of consistent methods over time can provide comparison data and opportunities to continually refine estimates. Because capitation is a critical component of virtually all managed care, understanding precisely how we define and count people needing services will remain vitally important.

4. The results of this study suggest that Medicaid eligibility in and of itself is an adequate proxy estimator of the number of persons with SMI/SED for most RSNs, but not all. For this reason it is not an ideal proxy, and in some regions the use of Medicaid eligibility may underestimate the number in need of services. Medicaid eligibility does have a strong relationship with the prevalence of SMI/SED but should not be used exclusively to estimate prevalence or to guide decisions about the funding and administration of mental health programs. It might be that some subtypes of Medicaid eligibility, such as those that reflect disability criteria as well as economic criteria, may prove a better proxy measure of SMI than does the broader category of Medicaid eligibility.

Data that are going to be used to guide public mental health administration, policy, and funding should be thoroughly understood. Examination of the Medicaid Eligibles numbers should be subjected to similar scrutiny if they are to be used in this context.

Composite indicators are often preferable to indicators taken singly, when the issues are complex and there are competing interests and interpretations. The Consumer Price Index, the Dow Jones Industrial Average, and the system for rating the efficiency of National Football League quarterbacks are examples. Emphasis on a single count or statistic can be misleading and may not take all relevant factors into account.

5. The current estimation models are based on the original Washington State Needs Assessment Household Survey (WANAHHS), conducted in 1993-1994 on approximately 7000 households. The empirical relationships found in that survey may still hold, but that is an empirical question. The Substance Abuse and Mental Health Services Administration (SAMHSA) has funded the more current National Co-morbidity Survey II (NCS-II), and the Western Interstate Commission on Higher Education has developed similar prevalence estimates for a number of states. Because surveys are very expensive, "piggy-backing" on existing or new

efforts can lead to improvements in estimation models without bearing the cost of re-surveying. Another option is to combine and coordinate surveys being conducted by state agencies for various purposes.

6. The race-neutral approach used in this study satisfied some of the concerns about epidemiological research methods and cultural bias, but not all. The methods used here are consistent with current literature and as such are defensible. However, to assume that the race-neutral methods employed satisfy all concerns or answer all questions about this very important aspect of epidemiological research would be a mistake. Further studies are needed to address the unique needs and issues in estimating prevalence for racial and ethnic groups.
7. With regard to the study of the prevalence of SED in children, the new federally funded NCS-II study is near release. A hybrid approach, taking the best of newly-released efforts and combining these with the best attributes of local studies, like this one and Blueprints, could lead to significant improvements in estimating prevalence of SED in children.

Equally important, more careful consideration and more clarity are needed in discerning the subset of children who are dependent upon publicly funded systems for mental health care.

8. Confidence intervals need to be calculated for the estimates derived in this study. Although methodologically challenging and costly, these parameters would permit assessment of the statistical significance of the differences observed between RSNs and the precision of these estimates. Confidence intervals have been provided in the large, well-funded national prevalence surveys as well as in the previous PEMINS study. The current study has been criticized for not including confidence intervals to date.

Introduction

Background and History

This report presents the results of a study of the prevalence of serious mental illness (SMI) in Washington State. Mandated by the 2001 state Legislature, this is the second study of prevalence in Washington State conducted in the last five years. In a collaborative effort between the Department of Social and Health Services (DSHS), Office of Research and Data Analysis (RDA), the Division of Alcohol and Substance Abuse (DASA), and the Mental Health Division (MHD), the original Washington State Needs Assessment Household Survey (WANAHNS), a telephone survey of approximately 7,000 households in Washington State, was conducted in 1993-1994 to assess alcohol, drug and mental health issues (Holzer, Kabel, Kohlenberg, Nguyen, and Nordland, 1998). The MHD subsequently commissioned a study of the prevalence of mental illness from these survey data through a contract with Dr. Charles Holzer of the Psychiatry and Behavioral Sciences Department at the University of Texas Medical Branch in Galveston, Texas. This study, usually referred to as the PEMINS study (**P**revalence **E**stimation of **M**ental **I**llness and **N**eed for **S**ervices), has been used subsequently to inform mental health planning, funding, and administrative decisions about publicly funded mental health care in Washington State.

The original PEMINS Study, referred to hereafter as PEMINS 1998, can be accessed at: <http://psy.utmb.edu/estimation/mhdprev/html/project.htm>.

There were significant reactions to the PEMINS report. Several factors converged that increased the importance, and therefore the controversy, over the PEMINS results. First, MHD was instituting changes in the way funding was allocated to Regional Support Networks (RSN) in the state in an attempt to more equitably distribute funding. The goal was to move away from a "historical" funding method, whereby funding was based upon previous allocations plus any allocated percentage increase allowed by the budget and negotiated between MHD and each RSN, to a formula that set statewide rates with adjustments made for selected factors. It was interpreted by some that, as a result of these changes in the formulas for mental health funding, urban regions of the state lost funding while rural regions gained.

A second factor affecting the interpretation of PEMINS 1998 was an audit of the MHD by the Joint Legislative Audit Review Committee (JLARC Report 00-8, Mental Health System Performance Audit, December 13, 2000). As part of a broad review of MHD

functions and activities, JLARC focused on several data analytic and research initiatives occurring at the MHD, including the prevalence study and its use in funding allocations. The authors examined the relationship between estimates reported in the PEMINS 1998 study and the number of Medicaid Eligible persons (Medicaid Eligibles) in each of the RSNs across the state. There was a specific focus on people at or below 200% of poverty, who were presumed to be dependent upon the public mental health system for care.

The JLARC study offered the following conclusion regarding the PEMINS study:

The exclusion of the homeless and certain diagnoses of serious mental illness could result in an underestimate of the total number of people in need of public mental health services in Washington State. Therefore, we do not believe the PEMINS study should be used as an indicator of the absolute number of people in need of public mental health services. However, there is no reason to believe that these shortcomings of the study would disproportionately affect the estimated need for service in any particular region of the state. Therefore, we believe the estimates of the PEMINS study are a valid indicator of relative differences in the need for mental health services among different regions of the state. [Page 20]

The JLARC report included the following as Recommendation 12 of its report:

The Mental Health Division should conduct periodic studies of the estimated regional prevalence of mental illness in order to determine whether the association between the number of Medicaid-eligible persons in a Regional Support Network and the number of people needing service remain intact. Further prevalence studies should address shortcomings of the Prevalence Estimate of Mental Illness and Need for Services study, including a methodology for capturing the homeless and the prevalence of mental illness among those incarcerated in county jails, and should utilize a broader range of diagnoses and weight the diagnoses by severity.

The JLARC study found a "strong association" between the results of PEMINS 1998 and the number of Medicaid Eligibles within each RSN. Based in large part on this finding, the study concluded that the number of Medicaid Eligibles might serve as a good proxy for estimating the number of people needing publicly funded mental health services (See JLARC Report 00-8, Mental Health System Performance Audit, December 13, 2000, Page 19).

This finding was controversial because of the role that Medicaid funding has come to play in the provision of mental health services. Like many states, Washington has maximized access to, and increased dependence upon, federal Medicaid dollars for funding public mental health care. Nationally, Medicaid now funds more than half of public mental health services administered by states (Buck, 2003). In Washington State, the percentage is even higher--89% according to the JLARC report. This makes Washington State one of the highest-ranking states dependent upon Medicaid funds for public mental health.

This reality raised several issues about PEMINS 1998 results and about the validity of using the distribution of Medicaid Eligibles as a proxy for publicly funded mental health service need. Prominent among these concerns were the following:

Some have argued that because Medicaid eligibility is a major factor in accessing mental health services in this state currently, correlating Medicaid Eligibles and the number needing service would obviously suggest a strong association, but ignore those needing but not receiving publicly funded services.

Most SMI cannot work due to their disability, are impoverished, and as such will also meet criteria for Medicaid Eligibility. Again, a high correlation would be expected.

The SMI who do qualify for Medicaid are those most likely to be found in a prevalence study based upon a household survey. Those receiving care are more likely to have a home, a stable residence and address, and could be located in a telephone survey. Many of the SMI who are not treated are more likely to be in institutions, homeless, not receiving Medicaid, and otherwise not likely to be identified in a study based on telephone access to persons.

Some of the questions in the original WANAHS telephone survey contained questions regarding having received public mental health services and these questions are related to the criteria for defining mental illness. These questions were asked specifically to determine disability and dependence. Thus some relationship between those meeting the criteria for mental illness and those eligible for Medicaid would not be unexpected.

Determining whether these concerns over using Medicaid Eligibility as a proxy for mental illness are substantive or whether they reflect uneasiness with the results of using this approach is no easy task. All can agree that there are persons with SMI who do not qualify for Medicaid and whom RSNs are contractually responsible to serve. Examples include people who are homeless, those who are incarcerated or committed temporarily, and those living in other residential settings who are dependent upon public mental health services for care.

Enabling Legislation

These reports, deliberations and concerns led the 2001 Washington State Legislature to appropriate funds for "a study of the prevalence of mental illness among the state's regional support networks.... The study shall examine how reasonable estimates of the prevalence of mental illness relate to the incidence of persons enrolled in medical assistance programs in each regional support network area." The exact language of Chapter 7, Laws of 2001, E2, Section 204(5)(c) follows:

(c) \$125,000 of the general fund--state appropriation for fiscal year 2002, \$125,000 of the general fund--state appropriation for fiscal year 2003, and \$250,000 of the general fund--federal appropriation are provided solely for a study of the prevalence of mental illness among the state's regional support networks. The study shall examine how reasonable estimates of the prevalence of mental illness relate to the incidence of persons enrolled in medical assistance programs in each regional support network area. In conducting this study, the department shall consult with the joint legislative audit and review committee, regional support networks, community mental health providers, and mental health

consumer representatives. The department shall submit a final report on its findings to the fiscal, health care, and human services committees of the legislature by November 1, 2003.

The Mental Health Division's Response

The legislation specified that MHD conduct a new study in consultation with the RSNs, community mental health providers, JLARC, and advocacy groups, with the final report due to the legislature on November 1, 2003. Shortly after these provisions were enacted, MHD contracted with the Washington Institute for Mental Illness Research and Training (WIMIRT) to assist with this study and to appoint a Project Director. To avoid biasing the study, MHD decided to employ a university-based researcher with independent professional standing. The Prevalence Advisory Committee (PAC), consisting of representatives from the RSNs, the Washington Community Mental Health Council (WCMHC) and other providers, advocacy groups, JLARC, and other stakeholders was formed to plan the study and to provide the advisory oversight required (see Appendix A for a listing of PAC members). These tasks were accomplished in the summer and fall of 2001. In October 2001, PAC began monthly meetings, which have continued throughout the project.

A principal policy decision at the outset established the authority of PAC to guide decisions on how to conduct the study. While taking more time and requiring consensus from different interests, this step ensured that all relevant interests would have a role in determining the course of the study. Early on, PAC and MHD agreed that the study needed to be conducted in a way that was transparent, conservative, and defensible. These guiding principles are described below:

1. *Transparency.* The methods used in conducting this study, the decisions made in the course of the work, and the generation and interpretation of results were to be presented in full so that readers of the report could review and understand how results were obtained and conclusions were reached.
2. *Conservatism.* Previous prevalence estimates, both locally and nationally, have been criticized for using overly broad definitions of need and identifying large numbers of persons in need--often well in excess of treatment capacity. As a result, many otherwise excellent studies have not been helpful in guiding mental health policy, planning, and administration. Further, estimating prevalence in this study required application of estimates derived from a variety of sources and applying a variety of methods and understandings of key concepts. A conservative strategy avoids guessing about factors that cannot be measured reliably, and uses more restrictive rather than looser definitions and lower rather than higher estimates, unless specific reasons can be cited for methods that are more liberal.
3. *Defensibility.* While study results might be politically contentious, advocates of alternative methods or conclusions should be able to understand the rationale

for study findings. Defensibility is promoted by the use of a broadly representative committee to guide the study and the adoption of transparent and conservative procedures.

Initial Deliberations in the Prevalence Advisory Committee

PAC spent the first three sessions discussing the methods, findings, and conclusions of the original PEMINS study. While there was considerable debate about study results and implications for funding, the group reached a consensus that the original PEMINS study was well designed and executed, and was a state-of-the-art effort that is an invaluable asset to the state. Developed by a leading expert in psychiatric epidemiology, Dr. Charles Holzer, it provided regional estimates of the prevalence of SMI for adults living in households. Washington State's project is an improvement upon older prevalence studies because few states have estimates broken out at county and regional levels to assist in project planning and administration. However, although usable base household estimates were provided, concerns were raised that key groups were missed.

Groups requiring more specific estimates. PAC deliberations concluded that the homeless, people in institutional settings (including jails, prisons, juvenile detention facilities, residential facilities, nursing homes, and psychiatric hospitals) were likely to have been undercounted in PEMINS 1998. Although Dr. Holzer and the original study group estimated the number of SMI in such settings and added these to the total, PAC consensus was that this exercise did not adequately enumerate these individuals. The estimates were viewed as low, and the residential category combined institutions such as jails, prisons, and hospitals with group quarters such as military barracks and college dormitories. There was group consensus that rates of SMI in correctional and psychiatric facilities and among the homeless are apt to be very high, and should be better accounted for in a prevalence study. The group favored a more detailed examination of each of these groups.

Groups missed in PEMINS 1998. In addition to unease about how PEMINS 1998 had accounted for homeless or institutionalized adults, there was a strong consensus that PEMINS 1998 had missed several key groups altogether. Prominent among those was children. PAC viewed serious emotional disturbance (SED) in children as a major public health issue not addressed in PEMINS 1998. Concerns were also expressed that minorities, recent immigrants, and refugees might not have been adequately enumerated in the original study.

Drift. A final issue discussed in PAC meetings was that geographical movement of mentally ill persons might affect prevalence distributions across the state. Specifically, it was argued that many SMI people "drift" towards areas where institutions are located or where services are concentrated. Three types of drift were discussed, including drift into areas with state hospitals, drift into urban areas, and drift across border areas of the state.

As a result of its deliberations about sub-populations undercounted or missed, PAC reached three basic conclusions:

1. The PEMINS 1998 household prevalence study was sound, but needed to be updated by applying more current census data.
2. Target groups overlooked or possibly undercounted in the original PEMINS household telephone survey were identified for further study: children, the homeless, state hospital patients, persons in correctional facilities (both juvenile and adult), and residents of nursing homes and other community residential facilities.
3. There are other groups that should be addressed in this study. Although it may not be possible to enumerate with the same degree of precision and focus as those listed above, the consensus was that the project needed to consider and address minority prevalence issues and drift. There were concerns that there might be other mental health prevalence issues that should be considered, particularly with regard to refugees and recent immigrants. While measurement of "drift" is elusive, and overlaps with counts in the other categories, the consensus was that the report should address disproportionate rates of SMI as a result of migration to available services.

The Expert Panel

A panel of national experts in psychiatric epidemiology and mental health needs assessment was convened and regularly consulted in order to bring the best available thinking to bear on these issues in Washington State. This group assisted PAC, WIMIRT, and MHD staff in designing the best study possible within available resources. The panel included the following experts:

- Ron Manderscheid, Ph.D., U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services; Washington D.C.
- Charles Holzer, Ph.D., Professor, Department of Psychiatry and Behavioral Sciences, University of Texas Medical Branch (UTMB); Galveston, Texas.
- Chuck McGee, Ph.D., Western Interstate Commission for Higher Education; Boulder, Colorado.
- Elizabeth Kohlenberg, Ph.D., Director of Research and Data Analysis, DSHS, Washington State; Olympia, Washington.
- Ann Vander Stoep, Ph.D., Professor, Department of Psychiatry and School of Public Health, University of Washington; Seattle, Washington.
- David Takeuchi, Ph.D., Professor, School of Social Work, University of Washington; Seattle, Washington.

- Michael Hendryx, Ph.D., Professor, Washington Institute for Mental Illness Research and Training, Washington State University; Spokane, Washington.
- Ronald Kessler, Ph.D., Professor, Harvard University; Cambridge, Massachusetts.

While other commitments limited the participation of some members over the two-year course of the study, the efforts of all were key to the study's success.

The Project Plan

PAC's basic study design consisted of the following steps:

1. Recalculate the PEMINS 1998 prevalence estimates using the most current U.S. Census data, conducting separate analyses of general household prevalence and prevalence in the principal public service need group of persons in households with incomes at or below 200% of the Federal poverty level (FPL).
2. From existing literature and available studies, identify the best estimates of the prevalence of SMI in adults and SED in children for each of the overlooked or possibly undercounted target groups.
3. Determine or estimate the population size for each target group by county and RSN.
4. Apply literature or research-based prevalence rates to population to estimate the numbers of SMI/SED for each target group (from Steps 2 and 3 above) in each county/RSN.
5. Use results of the target group calculations (Steps 2 through 4) to adjust the revised RSN base prevalence estimates from PEMINS recalculations (Step 1).
6. Write the final report and disseminate for review and input.
7. Deliver the final report to the Washington State Legislature in November 2003.

Timeframe

The sequence of steps described above was established in meetings with PAC, MHD Management Team, and the Expert Panel in meetings in May and June of 2002. Once the project plan was finalized, the target group sub-studies were conducted, concluding in June 2003. Dr. Holzer, Dr. Ron Jemelka of the Washington Institute for Mental Illness Research and Training and Project Director for this study, and UTMB colleagues conducted PEMINS re-analyses from May through July 2003. This work was slowed down significantly as a result of unprecedented delays in the release of final U.S. Census Bureau data. The data were received six months later than anticipated. The remainder of the project period was devoted to integrating the estimates for all groups,

writing of reports and summaries, and disseminating preliminary results and drafts for review and discussion.

Roles and Process

The ongoing collaborative involvement of stakeholders in PAC with MHD and WIMIRT staff has been critical to the project's success. This group met monthly for the duration of the project to provide guidance and oversight, review initial results, and assist in interpretation.

PAC meetings have been held on the first Friday of each month starting in October 2001, with the exceptions of April 2002, July 2002, and August 2003. Minutes were recorded at each meeting and reviewed and approved by PAC at the following meeting.

Organization of this Report

This study is actually a series of studies, summed to provide regional estimates of SMI in adults and SED in children in Washington State. The results of each study are presented as separate chapters, beginning with recalculations of the household survey estimates (Chapter 2). This chapter forms the base estimate of the prevalence of SMI/SED in the general population and in those whose family income falls at or below 200% of the poverty level. Next follows a series of chapters presenting the results of each target group mini-study. Chapter 9 summarizes the review of other groups of interest. Chapter 10 integrates the results of the individual studies into overall estimates of the prevalence of SMI/SED in Washington State. This chapter also compares these prevalence estimates to other epidemiological studies, summarizes what has been learned about the prevalence of SMI/SED, and offers conclusions and recommendations about the study of prevalence and its use in mental health policy.

It is anticipated that this study's results will better inform the legislature, policymakers, and other stakeholders about the prevalence of mental illness in Washington State, and the extent of need for services across different regions of the state.

Serious Mental Illness in Households

Introduction

A cornerstone of the current study is the recalculation of the estimates of SMI from the original PEMINS study. The PEMINS estimates were based on a household survey and population estimates from 1998. As described in Chapter 1, PAC recommended that estimates be recalculated based on new population data from the 2000 U.S. Census. They further recommended that separate estimates be generated for both households and for households with income levels at or below 200% of poverty. This chapter presents the results of the recalculated household survey prevalence estimates.

Use of U.S. 2000 Census Data

Dr. Holzer and his UTMB colleagues, working with Dr. Jemelka, conducted the PEMINS re-analyses from June through September 2003. Originally, U.S. Census Bureau data had been anticipated in January 2003. However, delays in the release of the data sets (Public Use Microdata Sets - PUMS) needed to re-calculate the prevalence estimates presented significant obstacles to progress. Once the U.S. Census Bureau released the delayed PUMS data sets in June 2003, analyses proceeded as planned.

The PUMS data set contains results from detailed census interviews of small sub-samples (1% and 5%) of persons canvassed by the census. Because these data provide demographic characteristics at smaller geographic levels, they are critical to the PEMINS models. Included in the PUMS data set are the number and percent of persons from various demographic categories, such as poverty status, racial and ethnic subgroups, education level, marital status, and age. Because these variables demonstrated empirical correlations with mental disorders in PEMINS 1998, they were applied singly or in combination to predict rates of serious mental disorder and need for mental health (MH) services at the county level. County level estimates were generated and then "rolled up" into RSN-level aggregate estimates, as had been done in PEMINS 1998. The method was duplicated precisely. Also, new estimates were generated which eliminated race variables from estimation equations.

PEMINS 2000 Study Website

The new PEMINS study, PEMINS 2000, can be found at the following website: http://psy.utmb.edu/washst_2000/project.htm.

This website contains the entire PEMINS re-analysis requested by PAC. Though not originally a part of the planned study, the PEMINS 2000 resource was made available, at PAC's strong request, for future state and local research and planning efforts. It includes estimates for all disorders, with details on the content of each model, demographic breakdowns of all persons with each disorder, and distributions for each county/RSN in the state. All data are presented in tabular format with thorough documentation. Key data allowing comparisons between RSNs are presented in bar graphs and color-coded maps to facilitate comparisons of variables of interest.

Because the PEMINS 2000 report is exhaustive, it is also lengthy. A summary is provided in this chapter, and key portions are excerpted to facilitate "bottom-line" discussions of the results.

Differences Between PEMINS 1998 and PEMINS 2000

The principal difference between PEMINS 2000 and PEMINS 1998 is the revision of the previous analyses using data from the 2000 U.S. Census. The original PEMINS study, completed in 1998, used extrapolations from the 1990 U.S. Census provided by the Office of Fiscal Management. With the release of the 2000 U.S. Census, more current population and demographic data were available for Washington State counties, and PAC endorsed updating the study with these more current data.

As PAC deliberations proceeded, two further issues were raised that resulted in additional analyses.

As mentioned above, separate estimates were requested for all persons in households and for persons in households with incomes at or below 200% of federal poverty standards. Although most consumers of publicly funded mental health services reside in lower-income households, the concept of the need for publicly funded services should be distinguished from eligibility for public services. Some public funding at the RSN level is used by those above 200% of poverty; for example, those committed under involuntary or crisis status. By looking at need in two ways, the current study becomes a more useful policy tool. The objective of transparency is met by showing readers how income level affects geographic estimates of need.

Second, much deliberation went into considerations of prevalence issues related to race and ethnicity. PEMINS 1998 found racial and ethnic differences in mental illness prevalence rates: some minority groups, such as African Americans and Native Americans, showed higher rates while others, such as Asians, showed lower rates compared to whites. Following the study, however, there were concerns that the inclusion of differential racial estimates might have resulted in misleading and erroneous results. A review of available scientific literature found a consensus among national experts on minority mental health that the prevalence of SMI/SED does not appear to differ among racial and ethnic groups. The details of the arguments are covered in Chapter 9.

Because of discussions and concerns raised at PAC and at the Mental Health Ethnic Minority Advisory Committee (EMAC), the decision was made to run all models two ways: (1) applying the original estimation models with correction factors for racial and ethnic populations, and (2) applying the original estimation models without including race/ethnicity in estimation equations. Because the first model duplicates the equations in PEMINS 1998, it allows examination of how prevalence rates may have changed over time. The second model provides an opportunity to examine the difference made by race and ethnicity as factors in the estimation equations.

Focus on Medium Definition of Mental Health Need

The original PEMINS methodology actually presented 13 different models for calculating mental health need and provided prevalence estimates for each model and for each geographic region (39 counties and 14 RSNs). The models and corresponding criteria are listed below:

1. Major Depressive Episode – NCS (based on diagnostic criteria from Kessler's National Co-Morbidity Survey)
2. Major Depressive Episode -- DSM (based on diagnostic criteria from the Diagnostic and Statistical Manual of Mental Disorders, DSM IV-R)
3. Anxiety disorder -- NCS
4. Panic Attacks -- NCS
5. Manic Episode -- DSM
6. Psychosis -- Clinical reappraisal
7. Any disorder in WANAHHS
8. Priority 2 MH Need (Broad Definition of Need for MH Services)
9. Priority 3 MH Need (Medium Definition of Need for MH Services)
10. Priority4 MH Need (Narrow Definition of Need for Mental Health Services)
11. Priority2+CI MH Need (same as # 8, but with Cognitive Impairment)
12. Priority3+CI MH Need (same as # 9, but with Cognitive Impairment)
13. Priority4+CI MH Need (same as # 10, but with Cognitive Impairment)

Details on these models of mental illness and the resulting estimates are provided in Chapter 4, Definitions of Disorder and Service Need, on the PEMINS website. In collaboration with the panel of national experts assembled for this study, PAC decided that the Medium Definition for Mental Health Service Need provided the most appropriate target population for this study. This model, described in more detail below, appeared to best fit the charge from the legislation and to best promote the group's objective of producing conservative, transparent, and defensible estimates. This decision also supported the recommendations made by JLARC cited in Chapter 1.

Excerpts from PEMINS 2000 Website

Two discussions from the PEMINS website report are excerpted in the next sections. In the Introduction to his web report, Dr. Holzer reviewed issues that can affect how the need for mental health services is identified. While it is clear that a mental disorder must be present in order to identify a need for mental health services, the presence of a

mental disorder alone is neither necessary nor sufficient to meet mandated eligibility criteria for Washington State. Additional criteria involve: (1) functional limitations, (2) mental health service use or desire for mental health services, (3) danger to self or others, and (4) dependence. These criteria are outlined as definitions for the broad, medium and narrow band definitions of mental health need. They are reviewed in the following excerpt from Chapter 4.

Also in the Introduction to his web report, Dr. Holzer discussed how the prevalence estimates in the full PEMINS 2000 report could be used. The ensuing excerpts from Chapter 8 of the PEMINS 2000 website report describe key population variables (adults, households, 200% of poverty level, persons eligible for public services) as well as considerations involved in using or excluding race/ethnicity as a factor in estimation equations, and explain how results are generated applying a variety of models and assumptions.

Excerpt 1. Definitions of Mental Illness in Adults Used in This Study

... In discussing measures of service need, we use the terms "possible clients" and persons who need services synonymously.

1. Selection of Disorders for Need Definition

The definitions of disorder used in identifying need for services break out three different working variables. The first of these was identified as DXSANY, which corresponds to having any of the mental disorders assessed in WANAHS as listed in the top of this chapter. Note that the summary variable (DXSANY) includes psychosis (including disturbed), depressed (DSM only), manic, GAD, and panic attacks. Note that in the operational definitions for generalized depression, anxiety disorder and panic, the NCS screening instrument provide probabilities of being a case instead of a definite code or diagnosis for meeting the criteria. Therefore in constructing this summary, we have used the alternative definition of depression (DXDEP - DSM), which more closely approximates a diagnosis instead of the probability version (DXAFF - NCS). For generalized anxiety disorder (DXANX) and manic episode, we coded persons with a probability of being a case of .5 or greater as having the disorder, and thus being in the summary for any disorder (DXSANY).

The second term defined is major disorder (DXMAJ). Some definitions of need are based on severe mental illness and do not include the two anxiety disorders assessed in WANAHS: generalized anxiety disorder and panic attacks. Therefore, we have defined major disorder as including only psychosis (including disturbed) depressed (DXDEP), and manic episodes.

The third variant for disorder is that the assessment of psychosis (including disturbed) included a clinician re-interview, which confirmed the presence of the disorder including review of disability being present. Therefore, in the definitions of need provided below, psychosis (including disturbed) counts as both having disorder and dysfunction, and therefore does not require the additional criteria to be positive.

The fourth variant on disorder is based on the limited set of disorders which could be assessed in the WANAHS survey. In order to include a broader set of mental health problems as a comparison to the more restrictive sets above, we constructed an all inclusive measure of mental problems (DISORDER) which included all those positive on any of the specific disorders (DXSANY) but also included as

positive those who reported poor mental health on question B2 of the survey: "During the past 12 months, has your emotional or psychological health been good, fair, or poor?" This definition is used only with the presence of other criteria.

2. Functional Limitations

One of the common elements in definitions of need for services is the presence of some kind of functional limitation. These may include limitations in ability to carry out Activities of Daily Living (ADLs) or the more fundamental Instrumental Activities of Daily Living (IADLs), such basics as personal care, grooming, cooking, and getting around. Higher levels of function could relate function at work, home, or school.

The WANAHHS instrument asked about several types of functioning, although it did not specify specifically whether the cause was related to physical health, mental health, or substance abuse. A means of focusing on mental health related problems was needed. In coding this section, therefore we have counted the following problems as mental health functional limitations only if the respondent had given a response to question B2 (above), which rated their emotional or psychological health as "fair" or "poor". Given this restriction, questions which assessed functional limitations included:

(B3) Do you have a physical or mental condition or health problem that seriously limits any major life activity such as getting around, communicating, working, or taking care of yourself?

(B5) (Has this/Have any of these) condition(s) lasted 6 months or more?

(B7) (Does this condition/ Do any of these conditions) limit the kind or amount of work you can do at a job?

(B8) (Does this condition/ Do any of these conditions) prevent you from working at a job?

(B9) (Does this condition/ Do any of these conditions) make it difficult for you to go outside the home alone, for example to shop or visit a doctor's office?

(B10) (Does this condition/ Do any of these conditions) make it difficult for you to take care of your own personal needs, such as bathing, dressing, or getting around inside the home?

The functional limitation variable (FUNCTION) is the count of the number of "Yes" responses from B3, B5, (B7 or B8), and (B9 or B10). A score of 2 or more on FUNCTION is used as positive in calculating this potential component of the need for services score.

3. Utilization of Mental Health Services or Use of Major Psychotropic Medications

As a third criterion for service need we have included various measures of actual utilization of mental health services, major medications, or a reported desire for mental health services. The survey items considered are listed below:

(B11) During the past 12 months, have you called crisis hotline for any reason?

(J16) During the past 12 months, have you seen a doctor or other professional about a mental or emotional health problem?

(J17) During the past 12 months, have you taken medication prescribed a doctor for a mental or emotional health problem?

(J18) During the past 12 months, have you been hospitalized for a mental or emotional health problem?

(H10b) Needed mental health care? (Keyed from H9k)

(H16b) Needed mental health care? (Keyed from H15k)

(G8b) (Did you want other types of additional services?) Mental health care?

Being positive on mental health utilization (MHUTIL) requires being positive on two or more of these items, except for mental hospitalization which is sufficient by itself.

4. Dangerous to Self or Others

The next variable for defining priority of need is the degree of dangerousness (DANGER) to ones self or to others. To define this we used two sets of WANAHS variables. The first consisted of reported thoughts about death, which was asked in one of two places (L6 or L14) depending on branching. This approximates suicidal ideation although it is not as focused as desirable. Answering either question positively adds a point to the variable DANGER.

(L6, L14) Did you think a lot about death -- either your own, someone else's, or death in general?

The second area focuses on reported threat in the behavior of the respondent toward themselves, toward someone else, or vice versa. If any of the following questions are answered positively a point is added to DANGER.

How often has your (spouse/partner) pushed, shoved, grabbed, or threatened to hit you? (Often or sometimes)

How often have you pushed, shoved, grabbed, or threatened to hit your (spouse/partner)? (Often or sometimes)

In the past 12 months how many times have you been arrested for driving under the influence of alcohol or other drugs? (2 times or more counts as positive)

In the past 12 months how many times were you arrested for something other than a traffic ticket or driving under the influence? (2 times or more counts as positive)

5. Dependence

The next component in defining priority need is the use of public assistance or inability to support one's self. The following three items are counted into the variable (DEPEND) with dependence being positive if DEPEND is two or more.

B12a. Are any of your medical expenses covered by private health insurance such as Blue Cross, Blue Shield, Group Health, Kaiser, or any insurance provided by an employer or union? (B12a, B12b, and B12c all no)

B12b. Are any of your medical expenses covered by a government health insurance program such as Medicare, Medicaid, First Steps (for pregnant women), Indian Health Service, and military-related program (CHAMPUS, VA, or other military), or the state's Basic Health Plan. (B12a, B12b, and B12c all no)

B12c. Are your medical expenses covered by any other program or insurance plan? (B12a, B12b, and B12c all no)

I6. Did you work at any job for pay, including temporary, full, or part-time jobs, during the past 12 months? (no)

I7c. In the past 12 months, how many days of work did you miss for any reason besides planned vacation? (missed 270 or more days)

If B12a, B12b, and B12c are all no, then DEPEND gets a point added. Similarly points are added if I6 is no or if I7c is 270 or greater. Having 2 or more points on DEPEND counts toward the priority score.

DEFINITIONS OF NEED FOR MENTAL HEALTH SERVICES

Broad definition of need for mental health services: Respondent has any of the WANAHS disorders or has self rating of poor mental health and meets one of the additional criteria: a. functional limitation,

b. MH services use or desire for MH services

c. Danger to self or others

d. Dependence

Operational details

Medium definition of need for mental health services: Respondent has a major WANAHS disorder and meets one of the additional criteria: a. functional limitation,

b. MH services use or desire for MH services

c. Danger to self or others

d. Dependence

[Operational details](#)

Narrow definition of need for mental health services: Respondent has a major WANAHS disorder and meets two of the additional criteria: a. functional limitation,

b. MH services use or desire for MH services

c. Danger to self or others

d. Dependence

[Operational details](#)

The Medium Definition of Mental Health Need was adopted as the proxy measure of SMI for both this study and the prior PEMINS and JLARC reports.

Excerpt 2. How the PEMINS 2000 Web Report is Constructed

As reported earlier, the report can be accessed at the following website:

http://psy.utmb.edu/washst_2000/project.htm.

Chapter 8 of the web-based report presents estimates for specific disorders and estimates for the need for mental health services, broken out into Broad, Medium and Narrow bands. It is anticipated that the reader will consider the results in three ways:

To gain basic knowledge about the different prevalence rates available to the state, counties, and RSNs. The purpose of the estimation approach used is to provide quantitative estimates.

To compare the estimated need for mental health services from county to county or RSN to RSN. This is useful and inevitable, and it should lead to the third way of viewing the data.

To understand the relationships between demographic composition and potential service need. It is hoped that the use of these estimates will focus primarily on the extent to which the presence of certain demographic characteristics suggests groups of potential clients with differing service needs. Planning should be encouraged which looks at client access to appropriate services.

Organization of Chapter 8 (Estimates for Washington State) in PEMINS 2000

This chapter presents estimates for each of the specific disorders and for the definitions of need for mental health services. Results are first provided for the RSNs and then for Washington Counties. Estimated prevalences for each definition of disorder or need are presented in four ways (see detailed definitions in next section):

as a rate of occurrence among the total adult population;

as a rate of occurrence among adults living in households;

as a rate of occurrence among adults living in households below 200% of poverty; and

as a rate of occurrence for "service eligible" adults among the all adults living in households.

For the most part, we have attempted to simplify the first level of tables so that the printed report will be readable and physically manageable. In the HTML (Web) version, however, we have provided links to many alternative presentations, such as charts and maps, and have provided tables breaking down the estimates by demographics.

Definitions of Residential Populations

As mentioned above, prevalence estimates in the tables, charts, and maps are presented in four different versions, each based on the residential and economic status of the population for which estimates are being made.

All Adults

The first set of estimates provides statistics (number of cases, percent of the population) for the total adult (age 18+) population by county or RSN. The definition of all adults includes those living in households, institutions, and group quarters. These estimated rates are sometimes influenced by a sizeable presence of persons in institutions (such as mental hospitals, prisons, and nursing homes) or of persons in other kinds of group quarters (such as college dorms and military installations).

2. Household Population

The next set of estimates provides statistics for the total adult population living in households by county or RSN. This excludes persons in institutions and group quarters. For some counties, this population may correspond more directly to the population base or service catchment area of a "community" based mental health facility.

Inclusion in such a catchment area or population would depend on whether the persons identified could access the community services and whether other services are already being provided to them. For example state and federal prisoners may not be permitted access to the community services, but may receive MH services from an internal provider. City and county jails, on the other hand, are likely to be served by the community programs. Military personnel are often served internally but their family members sometimes are not. College students in dormitories may use the campus programs or use local community services. Thus, the differentiation of total adult and residential populations is mixed, particularly because the populations identified by the U.S. Census are mixed.

3. Household Population Below 200% of Poverty

The third set of estimates provides statistics for the adult population living in households below 200% of the federal poverty level by county or RSN. This cutoff corresponds to the economic eligibility criterion for Medicaid, which by Washington State rules makes this population eligible for state supported mental health services. Note that the statistics for this group use the poverty restriction for both the numerator and denominator.

4. Poverty Based Eligibility

The fourth set of estimates provides statistics with the numerator based on persons eligible for state supported services, that is, they have both a disorder and fall below the 200% poverty guideline. In order to reflect the proportion of such persons in the community, this statistic uses the household population as its denominator. Persons in institutions and group quarters are left out of both the numerator and denominator of this statistic.

WASHINGTON STATE: SUMMARY ESTIMATES FOR DISORDERS AND NEED FOR SERVICES

... we present three sets of summary estimates for Washington State as a whole. The first set is the original estimates for 1998. The second set of estimates is for the year 2000, based on the new decennial census for that year. The third set of estimates are intended to be race neutral in the sense that the race/ethnicity of respondents was not included in the estimation models, although other socio-demographic variables are present which influence rates for specific race/ethnic groups.

In the web version of this report, clicking on the name of the estimation model links to the overall section for that disorder. In a paper version of the report, those sections are collated along with specific profile tables throughout the chapter.

The table that follows includes estimates based on demographics for the year 2000. These estimates are based on the original PEMINS/WANAHS survey used for the 1998 estimates. It was important to revise the estimates based on the decennial census, which provided information on all the variables used in the estimates. The earlier estimates were based largely on 1990 census data, but with estimates for 1998 provided for age, sex, and race only. Overall there is relatively little change in the estimates as percentages, although the different groups continue to grow and shift in size.

As an added component to this report, we have included a set of models and estimates, which are intended to be race neutral. This was accomplished by omitting race from the statistical models used for estimation. Overall this will reduce the differences among race/ethnic groups, but will not eliminate them, because the other demographic characteristics in the models influence the risk for mental disorders. There are clear differences among groups in variables such as age, education, and poverty. The rationale for presenting this set of estimates is a concern voiced in some groups, that there are cultural differences in the reporting of mental disorders to survey interviewers, and thus there may be cultural biases in the original survey. In that survey, every effort was made to over-sample the smaller ethnic groups, and to provide interpretation and language assistance in completing the original interviews. Nonetheless the original differences found raise questions about potential bias in that survey. Therefore, we have provided this additional set of estimates, which ignore the race/ethnicity of the original interviewees but consider their other characteristics. Although this set of estimates is not the "preferred model" from a statistical perspective, it provides opportunity to ask what happens when race is ignored.

Results of the PEMINS 2000 Study

This section presents a series of tables that display the principal results of the PEMINS 2000 household prevalence report. Following this summary of findings, the Discussion section considers the definition of SMI applied in the study, how estimates are distributed among RSNs, how prediction models are affected by removing the race/ethnicity variables, and how PEMINS 2000 results compare to those of PEMINS 1998. In each table, rate figures represent percentages (to the nearest hundredth) of persons in the population category who satisfy the indicated definition of mental health need. For example, in Table 2.1, 8.6% of all adults met the Major Depressive Episode criteria.

Table 2.1 displays statewide prevalence rates for each model of mental health need and population parameter. The model endorsed by PAC, Medium Definition of MH Need,

has a prevalence rate of 3.83% for adults in households statewide. In other words, almost four in every 100 adults meet medium-need criteria for SMI. The rate for those at or below 200% of poverty is 5.98%.

The table also includes estimates for "All Adults." These estimates were reported in the original PEMINS study, and were recalculated in the 2000 study. These estimates included estimates of the prevalence of persons in institutions and group quarters using census data counts. That percentage is 3.87% for the current study. However, as explained in Chapter 1, the current study replaced this estimation method by specific analyses of institutional and residents. For this reason, this column from PEMINS 2000 was not used in calculations and will not be included in subsequent discussions.

**Table 2.1
PEMINS 2000 Statewide Prevalence Estimates by Population and Illness Model**

Disorder	Model	All Adults (Includes Institutions)	Adults in Households	Below 200% poverty
Major Depressive Episode - NCS	waff03	8.60	8.48	10.33
Major Depressive Episode -DSM	wdep03	7.63	7.53	9.74
Anxiety disorder -NCS	wanx01	2.75	2.74	4.38
Panic Attacks -NCS	wpan03	4.57	4.51	6.46
Manic Episode -DSM	wman06	0.46	0.44	0.71
Psychosis -Clinical reappraisal	wpsy06	0.68	0.65	0.97
Any disorder in WANAHS	wany03	11.63	11.48	15.00
Priority2 MH Need	wpr2m03	5.44	5.35	9.24
Priority3 MH Need	wpr3m03	3.87	3.83	5.96
Priority4 MH Need	wpr4m01	1.39	1.38	1.57
Priority2+CI MH Need	wpr2ci03	5.99	5.85	10.25
Priority3+CI MH Need	wpr3ci03	5.99	5.85	10.25
Priority4+CI MH Need	wpr4ci01	1.85	1.79	2.51

Table 2.2 provides prevalence rates from PEMINS 1998 for comparison purposes. Between 1998 and 2000, the rate of SMI for households decreased from 3.87% to 3.83%. For households at or below 200% of poverty, the rate dropped from 6.31% to 5.96%. Comparison of these two tables allows examination of changes in other rates for specific mental illnesses as well. Changing demographics in the state, particularly in levels of income, contribute to the decrease in mental illness prevalence rates.

Table 2.2
PEMINS 1998 Statewide Prevalence Estimates by Population and Illness Model

Disorder	Model	All Adults (Includes Institutions)	Adults in Households	Below 200% poverty
Major Depressive Episode - NCS	waff03	8.74	8.47	10.13
Major Depressive Episode -DSM	wdep03	7.75	7.51	9.67
Anxiety disorder -NCS	wanx01	2.97	2.82	4.57
Panic Attacks -NCS	wpan03	4.82	4.70	6.50
Manic Episode -DSM	wman06	0.46	0.42	0.67
Psychosis -Clinical reappraisal	wpsy06	0.66	0.59	0.87
Any disorder in WANAHS	wany03	11.87	11.53	14.97
Priority2 MH Need	wpr2m03	5.69	5.44	9.66
Priority3 MH Need	wpr3m03	4.01	3.88	6.31
Priority4 MH Need	wpr4m01	1.44	1.36	1.55
Priority2+CI MH Need	wpr2ci03	6.31	5.99	10.84
Priority3+CI MH Need	wpr3ci03	6.31	5.99	10.84
Priority4+CI MH Need	wpr4ci01	2.00	1.84	2.68

In Table 2.3, the Medium Definition of Mental Health Need is applied to calculated prevalence rates and estimated numbers of cases for each RSN and for the state as a whole. Rates and case estimates are shown for households, for all, and for households below 200% of poverty. This table permits comparison of numbers and prevalence rates of SMI between RSNs. For adults in households, rates ranged from a low of 3.64% in Greater Columbia RSN to a high of 4.20% in Spokane RSN. As expected, persons at or below poverty level showed higher rates of SMI, ranging from 5.24% in Greater Columbia RSN to 7.16% in Southwest RSN.

Table 2.3
Medium Definition MH Need for 2000 by Regional Support Network

RSN	Adult Population Including Inst & Grp			Household residents			Households Residents below 200% poverty		
	Cases	Pop	Rate	Cases	Pop	Rate	Cases	Pop	Rate
STATE TOTAL	169,707	4,380,278	3.87	163,090	4,253,676	3.83	59,103	991,552	5.96
Spokane	13,093	310,439	4.22	12,442	296,016	4.20	5,386	88,125	6.11
King	51,439	1,346,388	3.82	50,100	1,316,928	3.80	13,601	246,870	5.51
North Sound	26,625	707,046	3.77	25,924	689,887	3.76	8,584	141,858	6.05
Greater Columbia	15,852	427,105	3.71	14,867	408,717	3.64	7,048	134,568	5.24
North Central	3,346	90,197	3.71	3,251	88,267	3.68	1,801	33,084	5.44
Northeast	2,028	50,136	4.04	1,998	49,614	4.03	1,020	15,316	6.66
Peninsula	9,638	241,075	4.00	9,030	231,960	3.89	3,592	54,547	6.59
Southwest	2,830	68,043	4.16	2,738	66,730	4.10	1,195	16,692	7.16
Thurston/Mason	7,678	192,614	3.99	7,340	187,312	3.92	2,844	43,623	6.52
Pierce	20,162	510,251	3.95	19,028	489,782	3.88	6,976	110,897	6.29
Grays Harbor	2,079	49,943	4.16	2,034	49,346	4.12	978	14,781	6.62
Clark	9,941	246,253	4.04	9,710	243,376	3.99	3,545	51,306	6.91
Chelan/Douglas	2,646	70,981	3.73	2,587	69,699	3.71	1,273	22,181	5.74
Timberlands	2,674	69,807	3.83	2,567	68,534	3.75	1,175	19,036	6.17

Table 2.4 shows the distribution of cases and rates among different demographic subgroups statewide. In the PEMINS 2000 website report, these details are available for each RSN, permitting more fine-grained analysis of regional demographic factors.

**Table 2.4
Estimates for Medium Definition MH Need for Demographic Subgroups (Statewide)**

Group	Adult Population Including Inst & Grp			Household residents			Households residents below 200% poverty		
	Cases	Pop	Rate	Cases	Pop	Rate	Cases	Pop	Rate
Total	169,707	4,380,278	3.87	163,090	4,253,676	3.83	59,103	991,552	5.96
Age									
1-17	Not Available			Not Available			Not Available		
18-24	14,463	559,361	2.59	12,917	508,535	2.54	8,937	210,161	4.25
25-44	95,646	1,816,217	5.27	93,194	1,784,187	5.22	33,727	419,188	8.05
45-64	44,873	1,342,552	3.34	43,572	1,330,862	3.27	15,411	204,107	7.55
65+	14,724	662,148	2.22	13,406	630,092	2.13	1,028	158,097	0.65
Sex									
Male	54,829	2,157,240	2.54	51,877	2,081,440	2.49	12,670	430,416	2.94
Female	114,878	2,223,038	5.17	111,213	2,172,236	5.12	46,433	561,136	8.27
Ethnicity									
White-NH	150,607	3,658,739	4.12	144,983	3,559,714	4.07	48,972	725,629	6.75
Black-NH	5,109	131,896	3.87	4,717	121,738	3.87	2,599	43,661	5.95
Asian	3,858	266,262	1.45	3,751	258,912	1.45	1,771	77,853	2.27
Native	3,513	59,282	5.93	3,335	56,700	5.88	1,831	22,806	8.03
Hispanic	6,620	264,099	2.51	6,303	256,613	2.46	3,929	121,602	3.23
Marital Status									
Married	61,734	2,554,519	2.42	60,085	2,506,346	2.40	14,393	370,907	3.88
Div/Sep/Wid	66,982	858,090	7.81	63,828	830,597	7.68	26,971	297,385	9.07
Never Mar.	40,990	967,670	4.24	39,177	916,733	4.27	17,739	323,261	5.49
Education									
Not HS Grad	16,890	637,570	2.65	15,648	608,675	2.57	14,425	275,750	5.23
HS Graduate	152,816	3,742,708	4.08	147,441	3,645,001	4.05	44,678	715,802	6.24
Poverty									
Below 200%	64,352	1,092,316	5.89	59,103	991,552	5.96	59,103	991,552	5.96
Above 200%	105,354	3,287,962	3.20	103,987	3,262,125	3.19	0	0	.

Table 2.5 displays prevalence estimates by mental illness model and population using race-neutral estimation methods from 2000 census data. Comparison of this table to Table 2.1 allows an assessment of the effects of excluding race/ethnicity variables from estimation equations. These comparisons will be discussed more fully in the final section of this chapter.

**Table 2.5
Race-Neutral Prevalence Estimates by Mental Illness Model and Population (2000 Census)**

Disorder	Adults Incl Inst & Grp	Households	Below 200% poverty
Major Depressive Episode - NCS	8.70	8.58	10.48
Major Depressive Episode -DSM	7.71	7.60	9.87
Anxiety disorder -NCS	2.80	2.79	4.47
Panic Attacks -NCS	4.65	4.59	6.58
Manic Episode -DSM	0.46	0.44	0.71
Psychosis -Clinical reappraisal	0.68	0.65	0.97
Any disorder in WANAHS	11.77	11.62	15.26
Priority2 MH Need	5.51	5.42	9.41
Priority3 MH Need	3.92	3.88	6.06
Priority4 MH Need	1.42	1.41	1.63
Priority2+CI MH Need	6.06	5.92	10.43
Priority3+CI MH Need	6.06	5.92	10.43
Priority4+CI MH Need	1.88	1.82	2.57

Table 2.6 applies race-neutral methods to estimating prevalence of SMI by RSN, according to the agreed-upon medium need standard. These estimates were endorsed by PAC as the preferred PEMINS model, and will be used as the best current estimates of household prevalence of SMI in Washington State.

Table 2.6
Race-Neutral Prevalence Estimates for Medium MH Need by RSN, 2000 Census

RSN	Adult Population Including Inst & Grp			Household residents			Households residents below 200% poverty		
	Cases	Pop	Rate	Cases	Pop	Rate	Cases	Pop	Rate
STATE TOTAL	171,802	4,380,278	3.92	165,154	4,253,676	3.88	60,072	991,552	6.06
Spokane	12,553	310,439	4.04	11,936	296,016	4.03	5,060	88,125	5.74
King	54,431	1,346,388	4.04	52,941	1,316,928	4.02	15,130	246,870	6.13
North Sound	26,411	707,046	3.74	25,730	689,887	3.73	8,417	141,858	5.93
Greater Columbia	16,353	427,105	3.83	15,348	408,717	3.76	7,546	134,568	5.61
North Central	3,456	90,197	3.83	3,357	88,267	3.80	1,910	33,084	5.77
Northeast	1,904	50,136	3.80	1,872	49,614	3.77	926	15,316	6.04
Peninsula	9,476	241,075	3.93	8,870	231,960	3.82	3,450	54,547	6.32
Southwest	2,682	68,043	3.94	2,598	66,730	3.89	1,094	16,692	6.55
Thurston/Mason	7,495	192,614	3.89	7,180	187,312	3.83	2,706	43,623	6.20
Pierce	20,574	510,251	4.03	19,442	489,782	3.97	7,111	110,897	6.41
Grays Harbor	1,966	49,943	3.94	1,924	49,346	3.90	899	14,781	6.08
Clark	9,696	246,253	3.94	9,487	243,376	3.90	3,362	51,306	6.55
Chelan/Douglas	2,646	70,981	3.73	2,588	69,699	3.71	1,297	22,181	5.85
Timberlands	2,516	69,807	3.60	2,420	68,534	3.53	1,068	19,036	5.61

Table 2.7 presents demographic subgroup breakouts of prevalence rates based on race-neutral estimation methods. Comparison of this table with Table 2.4 permits a more detailed assessment of the effects of removing race from the estimation equations.

Table 2.7
Race-Neutral Estimates for Demographic Subgroups-Medium Definition MH
Statewide (2000 Census)

Group	Adult Population Including Inst & Grp			Household residents			Households residents below 200% poverty		
	Cases	Pop	Rate	Group	Cases	Rate	Est Cases	Population	Rate
Total	171,802	4,380,278	3.92	165,154	4,253,676	3.88	60,072	991,552	6.06
Age									
01-17	Not Available			Not Available			Not Available		
18-24	14,152	559,361	2.53	12,486	508,535	2.46	8,475	210,161	4.03
25-44	97,751	1,816,217	5.38	95,262	1,784,187	5.34	34,839	419,188	8.31
45-64	45,256	1,342,552	3.37	44,054	1,330,862	3.31	15,726	204,107	7.70
65+	14,643	662,148	2.21	13,352	630,092	2.12	1,031	158,097	0.65
Sex									
Male	55,142	2,157,240	2.56	52,010	2,081,440	2.50	12,829	430,416	2.98
Female	116,660	2,223,038	5.25	113,145	2,172,236	5.21	47,242	561,136	8.42
Ethnicity									
White-NH	141,174	3,658,739	3.86	136,002	3,559,714	3.82	44,194	725,629	6.09
Black-NH	6,868	131,896	5.21	6,185	121,738	5.08	3,126	43,661	7.16
Asian	10,329	266,262	3.88	10,058	258,912	3.88	4,628	77,853	5.94
Native	3,153	59,282	5.32	3,004	56,700	5.30	1,603	22,806	7.03
Hispanic	10,279	264,099	3.89	9,906	256,613	3.86	6,521	121,602	5.36
Marital Status									
Married	63,706	2,554,519	2.49	62,147	2,506,346	2.48	15,650	370,907	4.22
Div/Sep/Wid	67,199	858,090	7.83	63,918	830,597	7.70	26,606	297,385	8.95
Never Mar.	40,898	967,670	4.23	39,090	916,733	4.26	17,816	323,261	5.51
Education									
Not HS Grad	16,749	637,570	2.63	15,672	608,675	2.57	14,398	275,750	5.22
HS Graduate	155,053	3,742,708	4.14	149,482	3,645,001	4.10	45,674	715,802	6.38
Poverty									
Below 200%	65,224	1,092,316	5.97	60,072	991,552	6.06	60,072	991,552	6.06
Above 200%	106,578	3,287,962	3.24	105,083	3,262,125	3.22	0	0	.
Residence									
Residential	165,154	4,253,676	3.88	165,154	4,253,676	3.88	60,072	991,552	6.06
Institutional	4,084	51,591	7.92	0	0	.	0	0	.
Group quarters	2,564	75,011	3.42	0	0	.	0	0	.

Comparison of PEMINS Estimates

The next two tables juxtapose several PEMINS estimation methods to allow comparison and analysis. Table 2.8 presents estimated numbers of adults in households with SMI for each RSN and statewide. Estimates are reported from each estimation model used in comparison to the overall population of the RSN catchment area. Table 2.9 presents the percentage of the total SMI population allocated to each RSN under each estimation method. For example, King County had an estimated 50,100 cases in 2000, based on standard PEMINS methodology. This is 30.6% of the total number (163,616) estimated to be SMI under the standard model. King County constituted 31.0% of the population in the 2000 Census. The population referent is shown in the last column of each table.

Table 2.8
Comparison of PEMINS Headcount Estimates Under Alternative Estimation Methods

RSN	1998 PEMINS Estimated Number of SMI in Households ¹	2000 PEMINS Estimated Number of SMI in Households-Standard Method ¹	2000 PEMINS Estimated # SMI in Households-Race Neutral Method	2000 PEMINS Estimated Number of SMI <200% Poverty ¹	Population
Chelan-Douglas	2,515	2,587	2,588	1,273	69,699
Clark County	8,753	9,710	9,487	3,545	243,376
Grays Harbor	2,127	2,034	1,924	978	49,346
Greater Columbia	14,777	14,867	15,348	7,048	408,717
King County	47,795	50,100	52,941	13,601	1,316,928
North Central	3,171	3,251	3,357	1,801	88,267
North Sound	24,121	25,924	25,730	8,584	689,887
Northeast	1,788	1,998	1,872	1,020	49,614
Peninsula	8,598	9,030	8,870	3,592	231,960
Pierce County	18,613	19,028	19,442	6,976	489,782
Southwest	2,755	2,738	2,598	1,195	66,730
Spokane County	12,330	12,442	11,936	5,386	296,016
Thurston-Mason	7,056	7,340	7,180	2,844	187,312
Timberlands	2,673	2,567	2,420	1,175	68,534
Total	157,070	163,090	165,154	60,072	4,253,676

¹ With the indirect estimation method employed in the PEMINS studies, the model is applied to each RSN and to the state totals separately. This results in small differences between the statewide PEMINS totals and the sum of the values for the 14 RSNs.

Table 2.9
RSN Percentages of Total SMI for Each PEMINS Estimate

RSN	Pct of PEMINS 1998 Estimated SMI in Households¹	Pct of PEMINS 2000 Estimated SMI in Households-Standard Method¹	Pct of PEMINS 2000 Estimated SMI in Households-Race Neutral Method²	Pct of PEMINS 2000 Estimated SMI <200% Poverty¹	Pct of State Population
Chelan-Douglas	1.6%	1.6%	1.6%	2.2%	1.6%
Clark County	5.6%	5.9%	5.7%	6.0%	5.7%
Grays Harbor	1.4%	1.2%	1.2%	1.7%	1.2%
Greater Columbia	9.4%	9.1%	9.3%	11.9%	9.6%
King County	30.4%	30.6%	31.9%	23.0%	31.0%
North Central	2.0%	2.0%	2.0%	3.1%	2.1%
North Sound	15.4%	15.8%	15.5%	14.5%	16.2%
Northeast	1.1%	1.2%	1.1%	1.7%	1.2%
Peninsula	5.5%	5.5%	5.3%	6.1%	5.5%
Pierce County	11.9%	11.6%	11.7%	11.8%	11.5%
Southwest	1.8%	1.7%	1.6%	2.0%	1.6%
Spokane County	7.9%	7.6%	7.2%	9.1%	7.0%
Thurston-Mason	4.5%	4.5%	4.3%	4.8%	4.4%
Timberlands	1.7%	1.6%	1.5%	2.0%	1.6%
Other/Unknown	0.0%	0.0%	0.1%	0.0%	0.0%
Total	157,070	163,090	165,154	60,072	4,253,676

1 With the indirect estimation method employed in the PEMINS studies, the model is applied to each RSN and to the state totals separately. This results in small differences between the statewide PEMINS totals and the sum of the values for the 14 RSNs.

2 The percentages in this table use the sum of the estimates for all RSNs as the denominator.

Comparison of PEMINS 1998 and PEMINS 2000

This section compares PEMINS 1998 and PEMINS 2000 estimates of serious mental illness in the household population. Because race-neutral estimates were not generated in 1998, only estimates under the standard models can be compared. The estimated number of persons with SMI in households increased from 157,070 cases statewide in 1998 to 163,090 in 2000--an increase of 3.8%. The total household population increased by 1.7% to 4,253,676 in this same time period. These estimates suggest that the rate of serious mental illness is growing at a rate faster than population growth, at least in household populations. Other chapters of this report consider other, non-household groups.

Standard and Race-Neutral Models

Tables 2.8 and 2.9 allow comparison of standard and race-neutral PEMINS models. Considerable discussion of the role of race and ethnicity went into PAC's deliberations about these estimates, with strong sentiment expressed about the validity of telephone survey methods with some populations. A primary criticism of the PEMINS 1998 study was the role of race in prevalence estimates, particularly for Asians, who were found to have lower rates

of SMI than other groups. These issues are discussed in more detail in Chapter 9 of this report.

PAC's final decision was to use race-neutral models--eliminating race as a predictor in the base estimation methods. The contentiousness of the issue, the lack of a methodology in the science of epidemiology to address concerns raised about potential cultural bias in standard survey methods, and the fact that the best available literature supports the view that the prevalence of SMI does not differ across minority populations or ethnic groups, led the group to opt for estimation methods that excluded race and ethnicity as factors in estimation equations. Although the resulting model deviates from the way the earlier PEMINS study calculated prevalence rates, a majority of PAC favored the race-neutral model.

Comparison of Columns 3 and 4 in the two tables provides an assessment of the effect of this decision on the results of this study: Table 2.8 shows the effect on head counts; Table 2.9 the effects of RSN relative shares of the total SMI population. The race-neutral model results in an overall increase of 2,281 persons with SMI statewide, a rise of 1.4%. Examination of individual RSNs shows that King County gained the highest number of cases, 2,841, as a result of adopting the race-neutral model (Table 2.8). Its percentage of all cases (Table 2.9) increases from 30.6% to 31.9%. Adopting race-neutral models results in little change for other RSNs.

Comparison of Tables 2.4 and 2.7 shows the rates of SMI increase for Asians relative to other ethnic groups when the race-neutral model is applied: from 1.45% of household residents in the standard model, to 3.88% with race/ethnicity excluded from the estimation formulas. Asians had prevalence rates much lower than other groups in PEMINS 1998--generally less than 2%. King County has a very large Asian population, and this factor likely accounts for the disproportionate increase in King County's estimates as a result of adopting the race-neutral model.

Since the release of the first PEMINS study, the low rates found for Asians has been challenged both by PAC and by advocacy groups. These concerns are addressed in the revised race-neutral estimates. At the direction of PAC, the race-neutral estimates will be the estimates carried forward to develop final, bottom-line estimates for this study.

Children

Introduction and Background

Studies estimate that one out of 10 children in the United States (U.S.) suffers from a mental illness that results in some degree of functional impairment (Costello et al., 1996; Shaffer et al., 1996). Children are the largest of the target groups not considered by the original PEMINS study. Inclusion of this group was expected to have a significant impact on the results of the current study.

Initial discussion in PAC centered around the ability and resources of the project to conduct a study of prevalence in children. In particular, the committee questioned the feasibility of conducting a large-scale study of the prevalence of SED in children. Such a study would exceed the resources allocated for the entire project. In addition, the Expert Panel, convened to advise this project, reported that a new version of the National Co-Morbidity Study (NCS) would soon be available that would provide recent estimates of the prevalence of SED in children. The NCS was in the field at the time of these discussions and included both young children and adolescents in the sample. Expert Panelists advised PAC not to expend resources at this time to conduct a household survey of children, but rather to wait for the results of the NCS Study and use those estimates in the current project. The recommendation of the Expert Panel was to include children in the current prevalence study by using existing prevalence estimates found in the literature for children with SED, then incorporating the new NCS results when they became available.

The following points highlight the discussions that ensued between PAC and the Expert Panel:

- Children are a key group overlooked in the original PEMINS household survey and warrant closer analysis.
- In our efforts to develop the most accurate estimates of mental illness possible, credible estimates need to be presented to the Legislature.
- Mental health services provided to children represent a large percentage of total services.
- Children are being treated with state and Medicaid dollars and should therefore be included.

PAC reached the following consensus:

“PAC recommends including children in the prevalence study. However, any work done to include children should not be done at the expense of the other populations which also need to be included.”

Issues related to specific subgroups of children with SED were then discussed. Children in institutional settings, such as those in juvenile correctional facilities or psychiatric hospitals, age breakdowns, poverty levels, recent immigrants, and abused/neglected children were seen as important issues in determining children’s prevalence. It was concluded that some of these child subgroups would be examined as part of other target groups studied (for example, the homeless and psychiatric hospital residents). Children in juvenile correctional facilities would be included as a separate sub-population.

The Expert Panel recommended and PAC concurred that this study would use the following definition of SED from the Federal Register (1993, 1998):

“... ‘children with a 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.”

Summary of Literature Reviewed

Rates of SED in children are estimated to be between 3 and 12 percent (Buckner & Bassuk, 1997; Costello et al., 1996 b; Narrow et al., 1998; Shaffer et al., 1996). The literature on prevalence rates of SED in children is summarized in Appendix B. Prevalence rates of SED vary, in part because researchers and policy makers have failed to agree upon a definition of impairment and a reliable and valid measure of impairment (Costello, 1999; Narrow et al, 1998.). Narrow et al., found that SED rates varied between 3 and 12 percent when they applied three of the most common legal definitions of SED to the same data set. Other sources of variation in SED rates include poverty, substance abuse, abuse history, and mental retardation.

Two large recent epidemiological studies of general mental illness prevalence and SED have been conducted: the Methods for the Epidemiology of Child and Adolescent Mental Disorders Study (MECA) and the Great Smoky Mountain Study of Youth (GSMS) (Costello et al., 1996; Lahey et al., 1996). Both studies used similar methods and yielded similar results. Both studies found that rates of mental disorders in children were approximately 20%. When including impairment in functioning as a criterion for

SED in children, the MECA found a rate of 6% and the GSMS found rates ranging from 4%-8%.

The MECA study (Lahey et al.) was a four-site NIMH-funded study of 1,285 children nine to 17 years old and their parents. Each child and parent were interviewed about the mental status of the child using the Diagnostic Interview Schedule for Children (DISC 2.3), and about the functional status of the child using the Child Global Assessment Scale (CGAS). Each site utilized different sampling techniques to obtain representative samples of local populations and provided monetary incentives for participation. One site utilized a Spanish translation and over-sampled Latino children. The overall sample was not representative in terms of socioeconomic status; all sites had higher than expected average family income. Thirty-nine percent of the children met criteria for a mental disorder. Rates of SED varied from 23 percent (mental health diagnosis and CGAS < 70) to 6 percent (mental health diagnosis and CGAS < 50) depending on the impairment cutoff score used (Bird et al, 1987; Green et al., 1994).

The GSMS (Costello et al., 1996b) was a four-year mental health prevalence study of nine, 11, and 13 year-old children in rural counties of North Carolina. The GSMS obtained a sample of children from 4,500 youth aged nine, 11, and 13 in the local public schools. Parents of these children were then contacted and asked to complete the Child Behavior Checklist (CBCL). If parents reported problematic behaviors above a certain cutoff level, further assessment of the child and parent was conducted. Additional measures of family burden, physical health, traumatic events, and community resources were administered. American Indian families were purposely over-sampled. However, the overall sample was predominately European-American and was not representative of children in the U.S. In this study, 20 percent of all children met criteria for a psychological diagnosis, and 4 to 8 percent met criteria for SED, depending on the criteria used for impairment. Children with externalizing disorder (attention deficit hyperactivity disorder, conduct disorder, oppositional defiant disorder) demonstrated the greatest amount of impairment (Costello, 1996). Correlates of SED included male gender, increased age, and low socio-economic status. When socio-economic status was held constant, neither ethnicity nor urban/rural differences were found to be associated with SED.

Although both the MECA and GSMS were well designed epidemiological studies and provide the best available estimates of SED prevalence as well as SED risk factors and services utilization, a number of methodological weaknesses can be identified. First, the GSMS used the Child Behavior Checklist (CBCL) to screen for psychopathology before children and parents were administered full interviews. Costello et al., (1996) acknowledge that the CBCL, Parent Version is not as sensitive to internalizing disorders (e.g., anxiety and mood disorders) as it is to externalizing disorders. Therefore, the study may have over-sampled children with externalizing disorders and underestimated children with internalizing disorders. Second, neither study utilized random sampling or obtained a representative sample of the U.S. population. In addition, neither study included in their samples children who were living in psychiatric hospitals, children in the juvenile justice system, or children without a home. By not sampling these children rates of SED were likely underestimated. Third, these studies did not investigate SED in

children younger than nine years of age. The survey instruments used were not designed for children under nine. This latter omission is significant since other research has demonstrated that children who have early childhood onset of mental illness have a more severe and costly prognosis (Mash & Wolfe, 2001). Moreover, establishing rates of mental illness in children younger than nine is necessary to inform researchers about the development of SED.

The 1993 and 1998 Federal Register estimates of SED use rates based on the MECA and GSMS studies. They do not address prevalence rates for children younger than nine. PAC agreed that the issue of prevalence rates for younger children warranted more attention. Of primary concern was the paucity of estimates of SED in children that are available for the birth-to-six age range.

Different CGAS functional impairment cutoffs and different methodologies employed in these studies result in widely disparate SED prevalence estimates for specific age ranges in the literature. This makes it difficult to draw overall conclusions about rates of SED by age. The committee also discussed the difficulties inherent in some of the methods described in the literature, such as using parental report of behavioral difficulties in very young children as an indicator of SED. Many young children demonstrate behavioral difficulties that, while inappropriate in older children, are perfectly normal for infants and toddlers. Mental illness in children is often not diagnosed or recognized until a child enters the school system and comes to the attention of professionals.

The children's literature was revisited for estimates for younger children. A spreadsheet was presented to the committee showing estimates broken down by specific ages from birth to 17 (see Table 3.1). In general, SED prevalence rates are much lower for younger age groups.

Additional studies on the prevalence of SED in children from birth to eight were provided by Ann Vander Stoep, a member of the project's Expert Panel. Information was reported from studies that had looked at prevalence estimates based on abuse rates, prevalence estimates based on pre-school screening, and prevalence estimates based on retrospective reports of disabled children. The National Center on Abuse and Neglect indicated that in 1995, 1.4% of children from birth to five years of age had substantiated abuse during a one-year period (National Center on Child Abuse and Neglect, 1997). A Minnesota study found that 4% of parents of children screened for SED before entering school reported emotional or behavioral conditions that impaired their child's functioning (Loseth & Carlson, 2003). Dr. Vander Stoep summarized another study which showed that among special education students classified as having an emotional disorder, 13.4% were identified at birth to two years of age, 11.7% at three to four, and 29.4% at five to six years of age (Wagner, 2003). Taken together, these studies support the inclusion of estimates of SED in children younger than age nine.

Table 3.1
Prevalence of Serious Emotional Disturbance in Children, by Age

Prevalence of Serious Emotional Disturbance in Children, by Age												
Study	Birth	1	2	3	4	5	6	7	8	9 to 11	12 to 18	
Federal Register, 1998										6--8	6--8	
Federal Register, 1998										10--12	10--12	
Angold et al., 1999										7.40	7.40	
Briggs-Gowen, et al., 2001			11.80									
Briggs-Gowen, et al., 2001		6.00	6.00									
Halfon & Newacheck, 1999	0.36	0.36	0.36	0.36	0.36	0.36	3.11	3.11	3.11	3.11	3.07	
Bird et al., 1988					17.90	17.90	17.90	17.90	17.90	17.90	17.90	
Shaffer et al., 1996										11.50	11.50	
Shaffer et al., 1996										5.40	5.40	
Costello et al., 1996										1.80	1.80	
Costello et al., 1996										0.50	0.50	
	Impairment Definition		N		Sample							
Federal Register, 1998	CGAS = 50		714567									
Federal Register, 1998	CGAS = 60		714567									
Angold et al., 1999	Impaired on the CAPA		1015		GSM first wave							
Briggs-Gowen, et al., 2001	CBCL/2-3 subclinical or clinical score		1280		Stratified Sample, CT Birth Records							
Briggs-Gowen, et al., 2001	PSI Difficult Child Scale		1280		Stratified Sample, CT Birth Records							
Halfon & Newacheck, 1999	Just diagnosis (see note)		99513		National Health Interview							
Bird et al., 1988	CGAS <61		777		Puerto Rico Health Dept.							
Shaffer et al., 1996	CGAS <60		1285		MECA							
Shaffer et al., 1996	CGAS <50		1285		MECA							
Costello et al., 1996	CGAS <60		1015		GSM							

It had been suggested that the literature on child abuse and neglect might help define working estimates of SED in children eight or younger. Selected tables from Child Maltreatment 2000, a U.S. Health and Human Services report, were discussed, showing rates based on cases reported to child protective services agencies in each state. It was noted that the rates overall are low (less than 1%, with Washington State having one of the lowest rates). There was considerable variation in rates across states—perhaps due to different reporting methodologies and other variations in the way states define and pursue reported child abuse. It was also noted that reported rates may significantly under-represent actual rates of abuse. Following discussion it was concluded that, while of interest, the available rates of maltreatment did not substantially contribute to our understanding of the prevalence of SED in younger children.

There was consensus among panelists that the studies covered in the literature review were the best estimates available to date, and that these estimates could be used to estimate SED in children.

The literature reviews also reinforced PAC’s decision to address special populations of children separately, such as incarcerated, homeless, and hospitalized children. The children’s studies identified did not include special populations.

Methodology

Denominator

The number of children living in the State of Washington was calculated using the 2000 U.S. Census data for each county. Children were defined as those under the age of 18. In order to calculate different prevalence rates based on children's ages, the number of children in each county was broken down first into two groups: birth to eight and nine to 17.

Numerator

Estimates of the number of children with SED living in Washington State were initially calculated using overall prevalence estimates of 6%, 7%, and 8% for the state's under-18 population (Table 3.2). These estimates are in the lowest range of those reported in the Federal Register (1993, 1998) for the State of Washington, were supported by the Expert Panel, and are consistent with the literature. However, these estimates are based on studies that only sampled children age nine to 17. In response to this, PAC looked at estimates for two groups of children: ages birth to eight and ages nine to 17.

Table 3.2
SED Estimates by RSN

RSN	SED Estimates by RSN								
	6%			7%			8%		
	Birth to 8 N	9 to 17 N	Total N	Birth to 8 N	9 to 17 N	Total N	Birth to 8 N	9 to 17 N	Total N
Chelan-Douglas	802	892	1,694	936	1,041	1,977	1,069	1,190	2,259
Clark County	2,952	2,987	5,939	3,445	3,484	6,929	3,937	3,982	7,919
Grays Harbor	465	570	1,035	543	665	1,208	620	760	1,380
Greater Columbia	5,052	5,305	10,358	5,894	6,190	12,084	6,736	7,074	13,810
King County	11,621	11,818	23,439	13,557	13,788	27,345	15,494	15,758	31,252
North Central	1,170	1,259	2,430	1,365	1,469	2,835	1,560	1,679	3,239
North Sound	7,378	7,886	15,264	8,608	9,200	17,808	9,838	10,515	20,352
Northeast	480	666	1,146	560	777	1,337	640	888	1,528
Peninsula	2,257	2,626	4,882	2,633	3,063	5,696	3,009	3,501	6,510
Pierce County	5,549	5,885	11,434	6,473	6,866	13,340	7,398	7,847	15,246
Southwest	708	787	1,494	825	918	1,743	943	1,049	1,992
Spokane County	3,058	3,392	6,450	3,568	3,957	7,525	4,078	4,522	8,600
Thurston-Mason	1,764	2,085	3,849	2,057	2,433	4,490	2,351	2,780	5,132
Timberlands	625	791	1,416	729	923	1,652	833	1,055	1,888
State Totals	43,881	46,950	90,831	51,194	54,775	105,969	58,508	62,600	121,107

Originally, PAC had decided to use estimates from the new NCS once it was released. However, the release of the new estimates has been delayed so they were not available at the time of this report. PAC, in consultation with Expert Panelists, re-reviewed the literature looking for prevalence estimates for children under the age of nine.

Initially, PAC accepted a suggestion from a member of the Expert Panel regarding prevalence in very young children. The suggestion was to apply prevalence estimates to increasing age ranges, incrementally. Specifically, the group adopted the following "working" prevalence rate estimates:

- Use a 1% estimate for ages birth to three
- Use 2% for four-year-olds
- Use 3% for five-year-olds
- Use 4% for six-year-olds
- Use 5% for seven-year-olds
- Use 6% for eight-year-olds
- Use 7% for nine to 17 year olds, which is the mid-point of the Federal Register estimate of SED for Washington State.

However, upon review of the children's estimates with Expert Panel members, PAC and the Expert Panel felt that the estimates were too low. Therefore, PAC decided to use a flat rate of 7% for all children birth to 17. PAC decided not to vary prevalence rates across counties based on socio-economic factors as had been done in the Federal Register work (1998). This method is the same as that used by the *Blueprints for an Effective Mental Health System in Washington State* (Blueprints) study that was published in 2000.

Results

Tables 3.3 and 3.4 show the calculated prevalence rates of SED in children using the final formula defined by PAC. The prevalence rate is based on the population of children residing in Washington State ages birth to 17. The results show a total estimate of 105,969 children with SED residing in Washington State.

Some researchers and PAC members noted that the estimated rates of children with SED are higher than those obtained for adults with SMI. The question is how is it possible? Wouldn't children with SED be expected to grow up to be adults with SMI? The literature and the Expert Panelists provided the following hypotheses for this apparent discrepancy:

- Differing methodologies are used in prevalence studies to determine mental illness in children versus adults. For example, mental illness in children is often determined via parental report rather than direct assessment.
- Mental illness is viewed differently in adults than in children. The research community as well as society tends to use broader definitions for emotional disturbance in children than for adults.
- Society tends to accept eccentricity in adults more readily than it does in children.
- Children are often observed more closely by others (in school, by parents, by siblings, and by other adults). Emotional/behavioral issues quickly become more apparent.

- As children mature they may gain control over their symptoms, or the symptoms may disappear; some children "grow out" of their difficulties.
- Mentally ill adults die at younger ages (through illness, misadventures, suicide) than the general population. Thus, they have a higher risk of not surviving to be included in adult estimates of SMI.

PAC agreed with these estimates, reporting that they had "face validity" and corresponded with provider and RSN experiences in the service system. In addition, a recently published study has found rates very similar to those reported in this project. The latest National Survey of American Families found that an estimated 7.4% of Washington State youth between the ages of six and 17 have symptoms of severe emotional and behavioral problems. ("Family Matters: Mental Health of Children and Parents," Washington Kids Count, Human Services Policy Center, Evans School of Public Affairs, University of Washington, July 2003). This is very similar to the 7% estimate used in the current study.

PAC agreed to adopt these estimates for the current project. The committee concluded that these estimates were defensible based on existing literature and expert opinion. The group discussed the value of erring on the side of conservative estimates, as this study is likely to quantify substantial unmet need for public mental health services in terms of service availability, accessibility, and utilization.

**Table 3.3
SED Estimates for All Children by County**

SED Estimates for All Children by County				
County	Population Under Age 18 (2000 Census)	Number of SED at 7% of Population	Total Population (2000 Census)	% SED to Population
Adams	5,613	393	16,428	2.39
Asotin	5,241	367	20,551	1.79
Benton	42,359	2,965	142,475	2.08
Chelan	18,636	1,305	66,616	1.96
Clallam	14,170	992	64,525	1.54
Clark	98,985	6,929	345,238	2.01
Columbia	973	68	4,064	1.68
Cowlitz	24,905	1,743	92,948	1.88
Douglas	9,602	672	32,603	2.06
Ferry	1,951	137	7,260	1.88
Franklin	17,076	1,195	49,347	2.42
Garfield	622	44	2,397	1.82
Grant	23,934	1,675	74,698	2.24
Grays Harbor	17,251	1,208	67,194	1.80
Island	18,243	1,277	71,558	1.78
Jefferson	5,138	360	25,953	1.39
King	390,646	27,345	1,737,034	1.57
Kitsap	62,064	4,344	231,969	1.87
Kittitas	6,864	480	33,362	1.44
Klickitat	5,188	363	19,161	1.90
Lewis	18,205	1,274	68,600	1.86
Lincoln	2,574	180	10,184	1.77
Mason	11,619	813	49,405	1.65
Okanogan	10,946	766	39,564	1.94
Pacific	4,500	315	20,984	1.50
Pend Oreille	3,084	216	11,732	1.84
Pierce	190,569	13,340	700,820	1.90
San Juan	2,695	189	14,077	1.34
Skagit	27,082	1,896	102,979	1.84
Skamania	2,624	184	9,872	1.86
Snohomish	166,139	11,630	606,024	1.92
Spokane	107,500	7,525	417,939	1.80
Stevens	11,497	805	40,066	2.01
Thurston	52,527	3,677	207,355	1.77
Wahkiakum	896	63	3,824	1.64
Walla Walla	13,562	949	55,180	1.72
Whatcom	40,247	2,817	166,814	1.69
Whitman	7,365	516	40,740	1.27
Yakima	70,751	4,953	222,581	2.23
Total	1,513,843	105,969	5,894,121	1.80

Table 3.4
SED Estimates for All Children by RSN

SED Estimates for All Children by RSN				
RSN	Population Under Age 18 (2000 Census)	Number of SED Children at 7% of Population	Total Population (2000 Census)	% SED to Population
Chelan-Douglas	28,238	1,977	99,219	1.99
Clark County	98,985	6,929	345,238	2.01
Grays Harbor	17,251	1,208	67,194	1.80
Greater Columbia	172,625	12,084	599,730	2.01
King County	390,646	27,345	1,737,034	1.57
North Central	40,493	2,835	130,690	2.17
North Sound	254,406	17,808	961,452	1.85
Northeast	19,106	1,337	69,242	1.93
Peninsula	81,372	5,696	322,447	1.77
Pierce	190,569	13,340	700,820	1.90
Southwest	24,905	1,743	92,948	1.88
Spokane	107,500	7,525	417,939	1.80
Thurston-Mason	64,146	4,490	256,760	1.75
Timberlands	23,601	1,652	93,408	1.77
State Totals	1,513,843	105,969	5,894,121	1.80

Children and Poverty

Having estimated the prevalence of SED in all children in Washington State using the consensus methodology of PAC, we next turn to a consideration of the prevalence of SED in children at or below 250% of poverty. As detailed in Chapter 2, the PEMINS 2000 study generated estimates for both the entire general population and for those who are at or below 200% of poverty, but did so only for adults. Comparable estimates for children in poverty are the focus of the remainder of this chapter.

Denominator

PAC, in conjunction with the Expert Panel, decided that poverty in children should be calculated at 250% of poverty rather than at 200% as had been used for adults. The committee adopted this methodology based on the understanding that Medicaid eligibility criteria and mental health service eligibility criteria had been set at 250% of poverty with the advent of the States' Children Health Insurance Program (SCHIP).

The first step in generating these estimates was to obtain the percentage of children at or below 250% of the poverty level. The method utilized was parallel to that used to obtain the adult estimates in PEMINS 2000. The U.S. Census Public Use Microdata

Sample (PUMS, the 5% percent sample) was used, and generated estimates of the number of children at or below 250% of poverty, which is presented in Table 3.5.

Numerator

PAC decided to use a prevalence rate of 9% for children at or below 250% of poverty. This decision was based on literature and Expert Panel review, which showed the prevalence rates of SED are higher for children in poverty. In addition, the Federal Register (1998) reports rates of 9% for children in poverty. The results of these calculations are presented in Table 3.5. Review of this table shows that application of the methodology adopted by PAC results in an estimate of 63,899 children with SED in Washington State at or below 250% of poverty.

The poverty calculations were made near the end of the study, in response to review of initial drafts. Further study and review would be needed to explore the dynamic relationship of poverty and SED in children. It is tempting to assume that the relationship between poverty status and prevalence of SED may be linear. However, the exact nature of the relationship, how it applies to the economic cutoff used in this study, and the contributions of other factors and interactions would need to be better studied and understood before making further adjustments.

Table 3.5
SED Estimates for Children At or Below 250% of Poverty by RSN

SED Estimates for Children At or Below 250% of Poverty by RSN				
RSN	Number of Children At or Below 250% of Poverty	Number of SED Children At or Below 250% of Poverty at 9% of Population	Total Population (2000 Census)	% SED to Population
Chelan-Douglas	13,244	1,192	99,219	1.20
Clark County	46,424	4,178	345,238	1.21
Grays Harbor	8,091	728	67,194	1.08
Greater Columbia	80,961	7,287	599,730	1.22
King County	183,213	16,489	1,737,034	0.95
North Central	18,991	1,709	130,690	1.31
North Sound	119,316	10,738	961,452	1.12
Northeast	8,961	806	69,242	1.16
Peninsula	38,163	3,435	322,447	1.07
Pierce	89,377	8,044	700,820	1.15
Southwest	11,680	1,051	92,948	1.13
Spokane	50,418	4,538	417,939	1.09
Thurston-Mason	30,084	2,708	256,760	1.05
Timberlands	11,069	996	93,408	1.07
State Totals	709,992	63,899	5,894,121	1.08

Homeless Persons

Introduction and Background

Homeless individuals have been shown to have a higher incidence of mental illness than the general population (see Burt, 1998 for a review). Homeless individuals who have mental illness are less likely to get needed mental health services and, if they do access services, it is most often through emergency rooms, jails, or other crisis facilities (Kushel, et al., 2001; Haugland, et al., 1997). For this reason, PAC felt strongly that the prevalence estimates of SMI should be closely examined for this population.

In addition, the original PEMINS study only included homeless persons through a larger U.S. Census category called “group quarters.” This category included homelessness, as well as military barracks, college dormitories, and other such housing arrangements. There were no separate estimates calculated for homeless individuals, and PAC felt this was a large oversight. It was decided early in the project to focus on the creation of credible prevalence estimates for this population.

There are many difficulties inherent in estimating both the number of homeless individuals and the rates of SMI in those individuals. When the project’s Expert Panel met with PAC to discuss this group, several important points emerged:

- Definitions of homelessness vary considerably. For example, studies have used the following definitions: “homeless on any night in the last year,” “homeless last night,” and “homeless one or more nights in the last month.” Some communities conduct focused “one-night counts” of homeless individuals. Others do not. Some communities feel that the number of shelter beds in an area reflects the number of homeless individuals in the area relatively well. Others point out that many homeless individuals, particularly those with mental illness, are unlikely to use shelter beds, and that relying on those counts alone seriously underestimates the number of homeless individuals in an area.
- The cost of doing a field study to assess the number of homeless mentally ill persons in Washington State could easily range in excess of one million

- dollars. The resources of the current effort and the time frame of the project made it prohibitive to attempt a large-scale study.
- Studies are contradictory when discussing the number of homeless in urban versus rural communities. Estimating the number of homeless in each type of community presents different challenges. Some researchers suggest that the homeless, particularly single homeless individuals with mental illness, may “drift” toward urban and relatively service-rich service areas (Burt, et. al., 2001). Other researchers note that homeless individuals and families in rural areas are likely to be undercounted because shelter arrangements in rural areas may be more informal. Homeless individuals and families are more likely to “camp” where they can (First, Rife, Toomey, et. al., 1994). Other researchers suggest that no differences exist between urban and rural areas (Tompkin, Wright, Sheard, et. al., 2003; Kales, Baron & Bixler, et. al., 1995; Roth & Bean, 1986).

Given these difficulties and limitations, PAC spent considerable time looking at alternative ways to measure and create estimates of mental illness for this group. PAC relied heavily on advice from the Expert Panel. Among the suggestions offered were:

- Use census data to determine regional homelessness rates and use agreed-upon prevalence estimates from the literature to estimate SMI among the homeless for each county.
- Use public assistance, Medical Assistance Administration (MAA), and other available state data to derive estimates of the number of homeless by county, and then apply agreed-upon prevalence estimates from the literature.
- Use available one-night counts to estimate homelessness.
- Conduct a series of focus groups with homeless persons.
- Conduct a key informant study to estimate the number of homeless by region.
- Obtain estimates of the number of shelter beds by county using the Washington State Community, Trade and Economic Development (CTED) database, which collects shelter information for the Emergency Shelter Assistance Program. Also, obtain estimates of “undocumented,” or informal, beds via some means.
- Work with state and national homeless advocacy groups to identify the jurisdictions that have conducted one-night counts and compare the numbers obtained with census data. Derive an adjustment factor to apply to all counties.
- Some combination of the above.

As the committee struggled with these issues, several alternatives were tested and several others became unworkable. For instance, the homeless numbers from the census data were delayed, and when they finally became available it was impossible to unbundle them from the “group quarters” category. The final methodology that PAC agreed upon relied upon the literature and key informant surveys. The final study method is discussed in the Methodology section of this chapter.

Summary of Literature Reviewed

There has been an abundance of research that documents the high prevalence of mental illness in homeless populations. The literature is summarized in Appendix C. Homeless studies have been conducted in the U.S. (Breakey et al., 1989; Haugland et al., 1997; Koegel et al., 1988), Australia (Herrman et al., 1989), Germany (Fichter et al., 1996; Salize et al., 2001), and Spain (Vasquez et al., 1997), reporting point prevalence rates ranging from 8% to 32% and lifetime prevalence rates ranging from 15% to 49%. Of these studies, three stand out as being relevant for the purposes of this study. These studies have large sample sizes, good methodology, and were conducted in the U.S. Two of these studies list point prevalence from 22% to 32.4% (Herrman et al.; Koegel et al.), and all three list lifetime prevalence rates ranging from 33.8% to 38% (Breakey et al.; Herrman et al.; Koegel et al.).

In addition, a local study for the City of Spokane was reviewed (Continuum of Care Plan for the Homeless, 2002). This document suggested that:

- A total of 34.9% in the survey were either mentally ill or dually diagnosed (mental illness and substance abuse).
- The rate was 23.4% for adults in households with children and 38.4% in households without children.
- Rates of mental illness were higher for homeless females than for homeless males.
- 35.8% of homeless persons/households listed mental illness as one of the top reasons for homelessness.

Methodology

Denominator

PAC struggled with the issue of obtaining a defensible count of the number of homeless individuals in Washington State. One early suggestion was to obtain estimates of the number of shelter beds in a county using the data collected by CTED for the Emergency Shelter Assistance Program.

An extract of CTED shelter bed night data was obtained for July 2000 through June 2001 by county and RSN (Tables 4.1 and 4.2). Review of these data by PAC led to discussion of the problem of unduplicated counts. The CTED data provides a count of the number of homeless people using shelter beds over a one-year period. The same individual could be using the same shelter bed for one, two, or 20 nights during the year and would be counted each time. However, since the prevalence study was interested in looking at the number of homeless people, not the number of homeless beds used, the number of bed nights could be divided by 365 nights to get an average bed night use. This analysis in effect removes the duplication inherent in the CTED count.

**Table 4.1
Homelessness Mental Illness Estimates Based on CTED Results By County**

County	Totals	Children (0-17)	Adults (18+yrs)	Estimated Number SMI ¹	Total Shelter Beds/yr Beds	Total Used by SMI ¹	Avg per Night by SMI
Adams County	56	28	28	18	135	44	0.1
Asotin County	498	213	285	161	2,097	679	1.9
Benton County	854	415	439	277	10,380	3,363	9.2
Chelan County	1,584	529	1,055	513	25,453	8,247	22.6
Clallam County	869	264	605	282	21,352	6,918	19.0
Clark County	3,114	1,316	1,798	1,009	42,908	13,902	38.1
Columbia County	33	13	20	11	89	29	0.1
Cowlitz County	1,864	396	1,468	604	27,929	9,049	24.8
Douglas County ²	0	0	0	0	0	0	0.0
Ferry County	58	19	39	19	903	293	0.8
Franklin County ³	0	0	0	0	0	0	0.0
Garfield County	21	6	15	7	139	45	0.1
Grant County	217	95	122	70	1,553	503	1.4
Grays Harbor County	169	90	79	55	3,452	1,118	3.1
Island County	102	50	52	33	2,278	738	2.0
Jefferson County	112	37	75	36	7,410	2,401	6.6
King County	19,641	5,807	13,834	6,364	587,121	190,227	521.2
Kitsap County	549	249	300	178	19,983	6,474	17.7
Kittitas County	177	80	97	57	3,246	1,052	2.9
Klickitat County	127	65	62	41	4,219	1,367	3.7
Lewis County	292	116	176	95	3,660	1,186	3.2
Lincoln County	19	6	13	6	285	92	0.3
Mason County	252	135	117	82	2,662	862	2.4
Okanogan County	152	69	83	49	1,164	377	1.0
Pacific County	85	28	57	28	175	57	0.2
Pend Oreille County	128	58	70	41	1,513	490	1.3
Pierce County	5,326	1,544	3,782	1,726	136,776	44,315	121.4
San Juan County	8	5	3	3	138	45	0.1
Skagit County	895	339	556	290	25,849	8,375	22.9
Skamania County	17	6	11	6	347	112	0.3
Snohomish County	4,163	1,506	2,657	1,349	103,432	33,512	91.8
Spokane County	3,014	1,505	1,509	977	93,139	30,177	82.7
Stevens County	88	35	53	29	1,671	541	1.5
Thurston County	2,531	676	1,855	820	42,619	13,809	37.8
Wahkiakum County	16	6	10	5	547	177	0.5
Walla Walla County	374	169	205	121	3,794	1,229	3.4
Whatcom County	634	277	357	205	14,445	4,680	12.8
Whitman County	140	67	73	45	3,526	1,142	3.1
Yakima County	1,699	885	814	550	23,708	7,681	21.0
Total	49,878	17,104	32,774	16,160	1,220,097	395,311	1083.0

¹Based on estimate from literature that 32.4% of total homeless are SMI.

²Chelan and Douglas counties were reported together and the total is reported under Chelan County.

³Franklin and Benton Counties were reported together and the total is reported under Benton County.

**Table 4.2
Homelessness Mental Illness Estimates Based on CTED Results By RSN**

Organization	Total Sheltered Individuals	Children (0-17 yrs)	Adults (18+ yrs)	Estimated Number SMI ¹	Estimated # SMI in Shelters on a Given Night
Chelan-Douglas RSN	1,584	529	1,055	513	23
Clark County RSN	3,114	1,316	1,798	1,009	38
Grays Harbor RSN	169	90	79	55	3
Gtr Columbia RSN	3,940	1,919	2,021	1,277	46
King County RSN	19,641	5,807	13,834	6,364	521
North Central RSN	425	192	233	138	3
North Sound RSN	5,802	2,177	3,625	1,880	130
Northeast RSN	293	118	175	95	4
Peninsula RSN	1,530	550	980	496	43
Pierce County	5,326	1,544	3,782	1,726	121
Southwest RSN	1,864	396	1,468	604	25
Spokane County RSN	3,014	1,505	1,509	977	83
Thurston-Mason RSN	2,783	811	1,972	902	40
Timberlands RSN	393	150	243	127	4
Total	49,878	17,104	32,774	16,160	1,083
¹ Based on estimate from literature review, 32.4% of total homeless are SMI.					

However, the CTED numbers only count the number of people who use a publicly funded shelter on a given night. Many people are homeless who would not get into a shelter on a given night. They may use shelters on subsequent nights, but would not be included in the estimates. This method also favors urban areas that have more shelter beds.

Upon review of the CTED numbers, concerns were raised about the size of the numbers. Discussions ensued in PAC about potential individuals and groups of individuals who may not have been represented in the CTED data. PAC concluded that there were actually three distinct populations of homeless persons within Washington State:

- There are those who are in shelter beds funded by state and county governments (captured by the CTED data).
- There are those who are in shelter beds operated by churches, charities, and other groups. These shelters may be less formally organized, may not report data to the CTED database, or may report data inconsistently.
- There are homeless persons who are not in shelter beds on any given night, but who are in the streets, parks, doorways, and camps.

In response to these issues, PAC agreed that all three groups should be considered in the current study. PAC discussed ways in which to collect the additional groups who are not included in the CTED data, and recommended that a key informant survey be conducted across all regions of the state. Key informants would be asked to estimate the number of homeless individuals in their region, the number of shelter beds (both formally and informally recognized beds), and the funding sources of those beds. The suggestion was one that had been made earlier by the Expert Panel, and was now endorsed by the majority of PAC members.

This approach to collecting data, although more exploratory and qualitative than other methods used in this project, was seen as the best method available at the time, as there was no single source that provided adequate estimates of homelessness across different regions of the state. The survey results were to be integrated with the information provided by the CTED counts and any other efforts to enumerate the homeless, such as one-night-counts. The effort would represent a more comprehensive count of homelessness than had been conducted to date for the state as a whole.

A semi-structured interview was developed and reviewed by PAC (refer to Appendix D for a copy of the instrument). PAC members offered to identify key informants to be surveyed.

Key Informant Survey

The survey asked questions about the number of publicly (government) funded shelter beds, the number of informal shelter beds, and the number of street homeless who were in the respondent's area. Occupancy rates on October 15, 2002 were also requested, if available, as well as estimates of the number of homeless that were under the age of 18. The date of October 15, 2002 was picked to attempt to control for seasonal variation in the numbers of homeless in an area, as the homeless may migrate to other areas in response to weather conditions.

Finally, a series of open-ended questions was posed, asking respondents their perceptions of the rate of mental illness among the homeless in their areas. Questions were also asked about geographic drift (or migration) of the homeless. The survey instrument was kept as short as possible and interviewers were directed to solicit answers to the core set of questions regarding the numbers of beds and homeless first, and then ask the remaining open-ended questions as time and respondent interest permitted.

There was much discussion surrounding identification of key informants. The original suggestion from the Expert Panel was to obtain a "snowball" sample and to do 8 to 10 face-to-face interviews. This informal practice involves asking each informant if there are others who should be interviewed, and following up on those recommendations. Informant names would be obtained from PAC suggestions, from homeless advocacy organizations, and from other contacts as available. PAC members agreed to contact homeless advocacy and service organizations to solicit key informants. Also, an

attempt would be made to conduct at least one interview within each RSN. RSN directors would be contacted and asked to identify key informants in their regions who could best address homelessness in general, and specifically mental illness in the homeless. This list of contacts would be combined with the key informants suggested by homeless advocacy organizations and other sources.

During February 2003 and March 2003, RSN directors were contacted to identify a local informant who could speak to the issues of homelessness and mental illness in their area. Identified individuals were sent a description of the Prevalence Study and a one-page set of questions regarding the homeless population in their areas. (See the Appendix E for copies of the materials.) Potential respondents were contacted via telephone in the week following the initial e-mail to either conduct an interview or to schedule a time for the interview. Interviews were conducted during March, April, and May 2003 by project staff. Information was obtained from 21 key informants, representing 31 of the state's 39 counties and all but one RSN.

Additional Issue

There was considerable discussion within PAC about asking key informants to estimate Medicaid eligibility in this population. Although CTED asks about Medicaid eligibility, those numbers are not aggregated or reported. PAC concluded that although exploring questions about Medicaid eligibility was an important goal of this project, the survey would not elicit "hard numbers." It was felt that many of the key informants would not know the number of Medicaid Eligibles within their populations and that the accuracy of the numbers would be difficult to ascertain. The final decision was that questions related to Medicaid eligibility would not be included in the survey.

Survey Results

The survey respondents were very helpful and cooperative, and offered many interesting and useful comments regarding homelessness and mental illness. However, respondent reports were highly variable. For example, one respondent estimated the prevalence of SMI as high as 60-70% in her area. She reported that homelessness was a major issue and that service programs had been developed specifically in response to this problem. However, a recent survey of homeless persons conducted in the same area had yielded low estimates of individuals with SMI.

Another respondent, who represented a homeless shelter organization, said that they try not to house the mentally ill in their shelters. They have had too many problems with the mentally ill homeless, and are unable to provide the proper supervision.

Another respondent noted that the fastest increasing homeless group in his area is single women without children, and that 80% of this group have mental health issues. He reported that workers are also seeing more homeless elderly.

Several respondents noted the link between substance abuse and mental illness, and discussed the difficulty of sorting out whether an individual is mentally ill or abusing drugs or alcohol. The view of one county's homeless coalition is that the number of

persons with co-occurring mental health substance abuse disorders has been increasing in the homeless population and in the area in general.

One respondent said that point-in-time counts don't mean anything in rural areas. There is much greater variability than in urban areas. Some nights there are 18 people, other nights two. Several respondents who have a lot of migrant farm workers in their areas described a dilemma in whether or not to consider them homeless. These seasonal workers have housing provided by employers and health care clinics. Their seasonal migration does not appear to have an impact on homelessness and mental illness.

Many respondents reported that they do not provide services to homeless children. Therefore, this information was not included in our analyses. Several did say, however, that this group deserves more attention and funding. One respondent described children as a tough group to get into services. Homeless children and adolescents tend to isolate themselves and to have their own culture. Another respondent noted that homeless children grow up to be homeless adults; we should be catching them earlier.

Table 4.3 presents the bed counts from the survey by county or county grouping. Respondents were asked about the number of publicly funded beds, the number of informal beds, and the number of street homeless in their areas. Respondents were also asked about occupancy rates. These rates were applied to the number of beds to develop an estimate of the total number of homeless.

The key informant survey results had numerous gaps due to difficulties in obtaining the names of potential key informants and in contacting potential respondents. Also, in some instances respondents were unable or unwilling to provide estimates. Therefore, there were numerous "holes" in the data that needed to be filled. The following describes the method used to impute estimates for counties without a key informant respondent or estimate:

Because estimates of the number of homeless were not obtained for all counties, estimates in the unknown areas were imputed as follows: Counties were categorized into four categories based on population: <50,000; 50,000-99,999; 100,000-299,999; and 300,000+. The ratio of estimated homeless persons to the county population was calculated for all counties where estimates had been obtained. These ratios, expressed as percentages, were then ranked from low to high within each of the four population categories, and a median percentage was identified for each category. Counties with unknown estimates were sorted into the population categories, and the median percentage for that category was applied to the county. The percentages were then multiplied by the county's population to determine an estimate of homeless individuals in the county. Imputed values and "plugged" median values are indicated by an asterisk in the county column in Table 4.4.

In addition, some PAC members felt that some key informant estimates were too low and did not reflect the actual number of homeless in some areas. For example, only

four homeless persons were reported for Wahkiakum and Skamania Counties. Only 146 homeless persons were reported for Benton and Franklin Counties combined. The CTED numbers report 16 homeless persons for Wahkiakum, 17 for Skamania, and 854 for Benton Counties. In addition, in those areas that had conducted a one-night count of homelessness, the key informants were able to report a much higher, and presumably more accurate, count of homeless individuals. As a result of these discrepancies, PAC decided to adjust counties with low estimates to the rate associated with the lowest one-night count estimate. Therefore, all counties with homeless rates less than 0.28% were adjusted up to that higher rate.

Numerator

The homelessness literature indicates SMI rates of 30% to 35% (Burt, 1998). These rates are fairly consistent across the literature reviewed. However, among the key informants a median value of 50% was reported, with a great deal of variability across informants. The committee observed a great deal of variation and little consistency in the estimated proportions of SMI homeless reported by respondents. In general, PAC members felt that front line service workers are observing higher rates of mental illness among the homeless than the literature indicates.

After much debate, PAC decided to use a flat SMI rate across all counties regardless of what survey respondents may have proposed. There is no literature to support differential regional rates of SMI in homeless populations. The ensuing discussion focused on which rate of SMI to apply to the homeless numbers. The following options were proposed:

- Use a literature-based estimate of 35%, which would be consistent with our efforts for other studies that have relied heavily on the literature.
- Use the higher rate of 50%, which was the median value from the key informant survey. This would be consistent with the anecdotal evidence that mental illness rates are rising among the homeless. Using this higher estimate would also overestimate the number of individuals with SMI to balance the likely underreporting of homeless individuals.
- Use a midpoint between these two rates: 42.5%. This rate would be slightly higher than the rate indicated by the literature, but lower than that indicated by the key informants.

The issue was put to PAC in an e-mail, with subsequent discussion at the next PAC meeting. A majority of PAC members voted to use the literature-based estimate of 35%. This decision differs from the 32.4% rate PAC considered in its initial deliberations. It was emphasized that the project has relied on the literature for other subgroups, and that it is most defensible to also do so here.

Table 4.3
Summary of Results from Homeless Key Informant Survey

Summary of Results from Homelessness Key Informant Survey									
County	RSN	# Public Beds	% Public Occup.	# in Public Beds	# Informal Beds	% Informal Occup.	# in Informal Beds	# Not in Shelters	Total Homeless
Chelan	Chelan/Douglas	.	.		.	.		.
Douglas	Chelan/Douglas	.	.		.	.		.
CHELAN/DOUGLAS TOTALS/AVGS		118	0.56	66	150	0.79	118	37	221
Clark	Clark	286	1.00	286	115	1.00	115	670	1,071
CLARK TOTALS/AVGS		286	1.00	286	115	1.00	115	670	1,071
Grays Harbor	Grays Harbor	30	0.06	2	60	0.53	32	9	43
GRAYS HARBOR TOTALS/AVGS		30	0.06	2	60	0.53	32	9	43
Asotin/Garfield	Greater Columbia	21	0.57	12	.	.		.	12
Benton/Franklin	Greater Columbia	0	0.00	0	89	0.80	71	75	146
Columbia	Greater Columbia	0	0.00	0	.	.		.	0
Kittitas/Klickitat/Yakima	Greater Columbia	190	0.95	181	22	0.95	21	160	361
Skamania	Greater Columbia	0	0.00	0	9	0.43	4	.	4
Walla Walla	Greater Columbia	118	0.81	96	110	0.66	73	7	175
Whitman	Greater Columbia	31	0.78	24	8	0.37	3	17	44
GREATER COLUMBIA TOTALS/AVGS		360	0.78	312	238	0.37	172	259	743
King	King				.	.			7,980
KING TOTALS/AVGS					.	.			7,980
Adams	North Central	.	.		.	.		.
Grant	North Central	.	.		.	.		.
Okanogan	North Central	.	.		.	.		.
NORTH CENTRAL TOTALS/AVGS									
Island/San Juan/Skagit/Snohomish/Whatcom	North Sound	308	1.00	308	213	1.00	213	750	1,271
NORTH SOUND TOTALS/AVGS		308	1.00	308	213	1.00	213	750	1,271
Ferry	Northeastern	.	.		.	.		.
Lincoln	Northeastern	.	.		.	.		.
Pend Oreille	Northeastern	.	.		.	.		.
Stevens	Northeastern	18	1.00	18				11	29
NORTHEASTERN TOTALS/AVGS		18	1.00	18				11	29
Clallam	Peninsula	70	0.98	69	10	0.50	5	200	274
Jefferson	Peninsula	18	1.00	18	10	1.00	10	150	178
Kitsap	Peninsula	.	.		.	.		.	0
PENINSULA TOTALS/AVGS		88	0.98	87	20	0.75	15	350	452
Pierce	Pierce	.	.		.	.		.	2,698
PIERCE TOTALS/AVGS		.	.		.	.		.	2,698
Cowlitz	Southwest	110	1.00	110				80	190
SOUTHWEST TOTALS/AVGS		110	1.00	110				80	190
Spokane	Spokane	.	.		.	.		.	3,699
SPOKANE TOTALS/AVGS		.	.		.	.		.	3,699
Thurston/Mason	Thurston/Mason	0	0.00	0	125	1.00	125	600	725
THURSTON/MASON TOTALS/AVGS		0	0.00	0	125	1.00	125	600	725
Lewis	Timberlands	6	1.00	6	6	1.00	6	20	32
Pacific	Timberlands	.	.		.	.		.	0
Wahkiakum	Timberlands	6	0.67	4				0	4
TIMBERLANDS TOTALS/AVGS		12	0.84	10	6	1.00	6	20	36

**Table 4.4
Homelessness Mental Illness Estimates Based on Population, Key Informant Survey,
and Literature by County**

Homelessness Mental Illness Estimates Based on Population, Key Informant Survey, and Literature by County							
County	Total Pop (2000 Census)	Estimated Number of Homeless Persons ¹	% Total Homeless to Total Population	# Homeless SMI Based on Survey	# Homeless SMI Using 35% Estimate	# Homeless SMI Using 42.5% Estimate	# Homeless SMI Using 50% Estimate
Wahkiakum	3,824	11	0.282	5	4	5	5
Columbia*	4,064	11	0.282	6	4	5	6
Ferry*	7,260	20	0.282	10	7	9	10
Skamania	9,872	28	0.282	14	10	12	14
Lincoln*	10,184	29	0.282	14	10	12	14
Pend Oreille*	11,732	33	0.282	17	12	14	17
Adams*	16,428	46	0.282	23	16	20	23
Pacific*	20,984	59	0.282	30	21	25	30
Asotin + Garfield	22,948	65	0.282	32	23	28	32
Jefferson* ²	25,953	73	0.282	7	26	31	37
Okanogan*	39,564	112	0.282	56	39	47	56
Stevens	40,066	113	0.282	56	40	48	56
Whitman	40,740	115	0.282	57	40	49	57
Walla Walla	55,180	175	0.317	114	61	74	88
Clallam	64,525	274	0.424	164	96	116	137
Grays Harbor	67,194	189	0.282	28	66	81	95
Lewis	68,600	193	0.282	135	68	82	97
Grant*	74,698	211	0.282	105	74	90	105
Cowlitz	92,948	262	0.282	79	92	111	131
Chelan + Douglas	99,219	280	0.282	179	98	119	140
Benton + Franklin	191,822	541	0.282	270	189	230	270
Kitsap*	231,969	654	0.282	327	229	278	327
Thurston + Mason	256,760	724	0.282	362	253	308	362
Kittitas + Klickitat + Yakima	275,104	776	0.282	388	272	330	388
Clark	345,238	1,071	0.310	386	375	455	536
Spokane	417,939	3,699	0.885	777	1,295	1,572	1,850
Pierce	700,820	2,698	0.385	675	944	1,147	1,349
Island + San_Juan + Skagit + Snohomish + Whatcom	961,452	2,711	0.282	1,356	949	1,152	1,356
King	1,737,034	7,980	0.459	3,990	2,793	3,392	3,990
State Totals	5,894,121	23,154	0.380	9,662	8,104	9,840	11,577

¹Estimates of the # homeless were not obtained for all counties. To impute estimates in these areas the following procedure was used. Counties were categorized into four "County Categories" based on population: <50,000, 50,000-99,999, 100,000-299,999, and 300,000+. Then the ratio of estimated homeless persons to the county population was calculated for all counties where estimates had been obtained. These ratios, expressed as percentages, were then ranked from low to high within each of the four County Categories, and the median percentage identified for each. That percentage was then used to impute the estimated number homeless in counties where estimates were not obtained, by multiplying the median percentage from the appropriate County Category to a given county's population. Imputed values and "plugged" median values are indicated by an asterisk in the County column. Estimates are calculated using a floor of 0.28% homeless.

²Jefferson County's % Total Homeless to Total Population value of .686 was replaced by the median value.

³For those counties where an estimate of the percent homeless was not obtained from a key informant, the median estimated percent SMI across all key informants (0.50) was substituted.

**Table 4.5
Homelessness Mental Illness Estimates Based on Population, Key Informant Survey,
& Literature by RSN**

Homelessness Mental Illness Estimates Based on Population, Key Informant Survey, and Literature by RSN						
RSN	Total Pop (2000 Census)	Total Homeless	% Total Homeless to Total Population	# Homeless SMI Using 35% Estimate	# Homeless SMI Using 42.5% Estimate	# Homeless SMI Using 50% Estimate
Chelan-Douglas	99,219	280	0.282	98	119	140
Clark	345,238	1,071	0.310	375	455	536
Grays Harbor	67,194	189	0.282	66	81	95
Greater Columbia	599,730	1,711	0.285	599	727	856
King	1,737,034	7,980	0.459	2,793	3,392	3,990
North Central	130,690	369	0.282	129	157	184
North Sound	961,452	2,711	0.282	949	1,152	1,356
Northeast	69,242	195	0.282	68	83	98
Peninsula	322,447	1,001	0.310	350	425	501
Pierce	700,820	2,698	0.385	944	1,147	1,349
Southwest	92,948	262	0.282	92	111	131
Spokane	417,939	3,699	0.885	1,295	1,572	1,850
Thurston-Mason	256,760	724	0.282	253	308	362
Timberlands	93,408	263	0.282	92	112	132
State Totals	5,894,121	23,154	0.380	8,104	9,840	11,577

Results

Tables 4.6 and 4.7 show the resulting estimates of SMI in homeless individuals across Washington State.

Based upon the final decision of PAC, a 35% estimate was used to calculate the final prevalence estimates of SMI among the homeless population. Tables 4.6 and 4.7 list the numbers for both counties and RSNs. These numbers are used in Chapter 10 to calculate the final prevalence estimates statewide and by RSN.

There was considerable discussion about the number of homeless reported for Spokane RSN. Some PAC members felt that Spokane's homeless numbers were too high for an area of its size and population. The homeless numbers that were reported by key informants for Spokane County are based on a one-night count. Overall, counties that had conducted a one-night count had higher estimates of homelessness than did those counties not conducting a one-night count. Differences in methodologies for conducting one-night counts were discussed. It is clear from the survey results that conducting a one-night count gives counties an advantage in reporting homeless figures. In response, PAC, with the support of the Expert Panel, decided that rates be

assigned that were at least as high as the lowest one-night count estimates. Therefore, as noted previously, all counties with rates less than 0.28% were increased to that level.

Overall PAC agreed (with some dissent) that the estimated number of homeless individuals was more inclusive than the CTED numbers only, and supported the final numbers as the best possible estimates that could be produced within the resources of this study. In fact, a relationship was demonstrated between the key informant estimates of homeless and the CTED number of homeless in shelters. A correlation of .983 ($p < .01$) was found between the CTED bed night numbers and the key informant estimates of homeless individuals.

Table 4.6
Final Homelessness Mental Illness Estimates by County

Final Homelessness Mental Illness Estimates by County				
County	Estimated Number of Homeless Persons	# Homeless SMI Using 35% Estimate	Total Pop (2000 Census)	% Homeless SMI to Population
Wahkiakum	11	4	3,824	0.099
Columbia	11	4	4,064	0.099
Ferry	20	7	7,260	0.099
Skamania	28	10	9,872	0.099
Lincoln	29	10	10,184	0.099
Pend Oreille	33	12	11,732	0.099
Adams	46	16	16,428	0.099
Pacific	59	21	20,984	0.099
Asotin + Garfield	65	23	22,948	0.099
Jefferson	73	26	25,953	0.099
Okanogan	112	39	39,564	0.099
Stevens	113	40	40,066	0.099
Whitman	115	40	40,740	0.099
Walla Walla	175	61	55,180	0.111
Clallam	274	96	64,525	0.148
Grays Harbor	189	66	67,194	0.099
Lewis	193	68	68,600	0.099
Grant	211	74	74,698	0.099
Cowlitz	262	92	92,948	0.099
Chelan + Douglas	280	98	99,219	0.099
Benton + Franklin	541	189	191,822	0.099
Kitsap	654	229	231,969	0.099
Thurston + Mason	724	253	256,760	0.099
Kittitas + Klickitat + Yakima	776	272	275,104	0.099
Clark	1,071	375	345,238	0.109
Spokane	3,699	1,295	417,939	0.310
Pierce	2,698	944	700,820	0.135
Island + San_Juan + Skagit + Snohomish + Whatcom	2,711	949	961,452	0.099
King	7,980	2,793	1,737,034	0.161
State Totals	23,154	8,104	5,894,121	0.137

**Table 4.7
Final Homelessness Mental Illness Estimates by RSN**

Final Homelessness Mental Illness Estimates by RSN				
RSN	Estimated Number of Homeless Persons	# Homeless SMI Using 35% Estimate	Total Pop (2000 Census)	% Homeless SMI to Population
Chelan-Douglas	280	98	99,219	0.099
Clark	1,071	375	345,238	0.109
Grays Harbor	189	66	67,194	0.099
Greater Columbia	1,711	599	599,730	0.100
King	7,980	2,793	1,737,034	0.161
North Central	369	129	130,690	0.099
North Sound	2,711	949	961,452	0.099
Northeast	195	68	69,242	0.099
Peninsula	1,001	350	322,447	0.109
Pierce	2,698	944	700,820	0.135
Southwest	262	92	92,948	0.099
Spokane	3,699	1,295	417,939	0.310
Thurston-Mason	724	253	256,760	0.099
Timberlands	263	92	93,408	0.099
State Totals	23,154	8,104	5,894,121	0.137

Incarcerated Adults

Introduction and Background

Many studies have documented the high rates of mental illness in jailed and incarcerated adults. Persons with mental illness living in correctional facilities were not surveyed in the original PEMINS and were not included through use of a correction factor or other method. This group was therefore identified by PAC and the Expert Panel as a target group for this study.

Jail and prison populations were examined separately in this study. This was done for several reasons:

- Populations for the different institutions were counted differently (average daily census for jails, single-point count for prisons).
- Jails experience a continual flow of short-term admissions, which minimizes the availability of mental illness assessment upon which prevalence estimates are based.
- Literature reviews suggested different prevalence rates for jail and prison populations.

Literature Review

PAC reviewed a study matrix developed by staff that summarized 13 prevalence studies in prisons and jails, beginning in 1985 and concluding with a recent report by the Bureau of Justice Statistics (Ditton, 1999). This review is summarized in Appendix F. Sources, sample characteristics, methods, and principal findings were summarized, and methodological issues were flagged. Several limitations in past studies were noted:

- The studies used a variety of methods. Several good studies assessed mental illness by means of the Diagnostic Interview Scale (DIS), which applies measures different from those of the PEMINS study.
- The studies showed differences in the range of diagnoses that qualified subjects as mentally ill and in the role of functional limitations in the assessment of mental illness, resulting in widely varying estimates.
- Many studies provided prevalence estimates for specific disorders without

indicating the degree of overlap or co-occurring diagnoses, thereby precluding aggregation of results into a total mental illness estimate.

Despite these limitations, PAC concluded that usable estimates of SMI could be found in these studies. The well-conducted studies generally yielded estimates between 15% and 20% for major mental illnesses, with estimates coalescing around estimates of 16% or 17% for jails and prisons combined.

Methodology

Denominator

Jail census data provided by the Washington Association of Sheriffs and Police Chiefs for calendar year 2001 was used for the jail denominator. For prisons, the State of Washington Department of Corrections, Planning and Research Section provided population counts for June 30, 2002.

Numerator

The project's Expert Panel reviewed estimates from the matrix studies and an additional seven studies acquired through continuing literature searches. The Panel noted that studies done locally (in King and Pierce Counties and in Washington prisons) provided estimates consistent with other studies.

Following the Expert Panel meeting, PAC considered conducting a formal meta-analysis based on the reported studies. Because studies with large sample sizes and direct estimates of SMI yielded estimates that consistently averaged near 15%, this task did not appear sufficiently urgent to justify the strain on limited project resources. A compromise solution was adopted: Combine the results of the relevant studies, i.e., those using diagnostic categories similar to those used in PEMINS and those that allowed aggregation into an estimate of SMI. It was understood that studies with large samples (e.g., population studies in Colorado and New York) would exert greater weight in the results. The panel expected that the resulting estimates could be defended as transparent and conservative.

Results

The prevalence summary in Table 5.1 is followed by estimates of mental illness reported in various studies. Table 5.2 lists the estimates for prisons. Table 5.3 lists estimates for jails. In the tables, results are presented by diagnostic category as well as by SMI status; results by category add up to more than the SMI estimates because diagnoses overlap.

Table 5.1
Overall Summary: Prison and Jail Prevalence Study Meta-Analysis

Overall Summary							
Prison and Jail Prevalence Study Meta-Analysis							
	Any Disorder	Any Mood Disorder	Major Depression	Any Psychotic Disorder	Bipolar	Any Psychotic Plus Bipolar	SMI
Prison Prevalence Study Summary							
Estimated Frequencies							
Number with Disorder	2,556.23	363.28	199.75	160.01	12.89	44.93	7,853.77
Total Study N	14,958	2,957	1,667	3,166	862	862	53,556
Total Prevalence Estimate	17.09%	12.29%	11.98%	5.05%	1.50%	5.21%	14.66%
Total Standard Error	0.308%	0.604%	0.795%	0.389%	0.413%	0.757%	0.153%
Jail Prevalence Study Summary							
Estimated Frequencies							
Number with Disorder	999.68	25.99	211.29	150.37	55.21	95.03	244.11
Total Study N	6,133	183	2,559	2,742	2,559	1,287	2,073
Total Prevalence Estimate	16.30%	14.20%	8.26%	5.48%	2.16%	7.38%	11.78%
Total Standard Error	0.472%	2.580%	0.544%	0.435%	0.287%	0.729%	0.708%
Prison Plus Jail							
Estimated Frequencies							
Overall Total Number with Disorder	3,555.91	389.26	411.03	310.38	68.10	139.96	8,097.88
Overall Total Study N	21,091	3,140	4,226	5,908	3,421	2,149	55,629
Overall Total Prevalence Estimate	16.86%	12.40%	9.73%	5.25%	1.99%	6.51%	14.56%
Overall Total Standard Error	0.258%	0.588%	0.456%	0.290%	0.239%	0.532%	0.150%

Table 5.2
Estimated Frequencies Used in Prison Prevalence Summary Study

Estimated Frequencies Used in Prison Prevalence Summary Study								
Source	Sample Size	Any Disorder	Any Mood Disorder	Major Depression	Any Psychotic Disorder	Bipolar	Any Psychotic Plus Bipolar	SMI
Neighbors, Michigan prisons	379	0	109.91	0	39.42	0	0	0
Daniel et al. 1988	100	90.00	17.00	15.00	7.00	2.00	9.00	26.00
Walters et al. 1988	373	0	0	0	0	0	0	32.82
Herman et al. 1991	189	0	22.68	34.02	5.67	1.89	7.56	28.35
Bean et al. 1988 ohio	464	56.14	38.51	31.09	13.92	4.64	18.56	0
Colorado	16,750	0	0	0	0	0	0	2,345.00
Gains Center 1999		0	0	0	0	0	0	0
Dvoskin & Steadman 1989	36,144	0	0	0	0	0	0	5,421.60
Chiles et al.	109	95.92	0	32.70	5.45	4.36	9.81	0
Motiuk & Porporino 1992	1,925	0	175.18	0	88.55	0	0	0
Jordan et al. 1996	805	0	0	86.94	0	0	0	0
Ditton 1999	14,285	2,314.17	0	0	0	0	0	0
Number with Disorder	71,523	2,556.23	363.28	199.75	160.01	12.89	44.93	7,853.77
Total Study N		14,958	2,957	1,667	3,166	862	862	53,556
Total Prevalence Estimate		17.09%	12.29%	11.98%	5.05%	1.50%	5.21%	14.66%

Table 5.3
Estimated Frequencies Used in Jail Prevalence Study

Estimated Frequencies Used in Jail Prevalence Study								
Source	Sample Size	Any Disorder	Any Mood Disorder	Major Depression	Any Psychotic Disorder	Bipolar	Any Psychotic Plus Bipolar	SMI
King County 1991	183	0	25.99	0	49.96	0	0	0
Jemelka 1991 Pierce County	73	0	0	2.99	1.97	1.97	3.94	7.01
Teplin 1990	728	0	0	28.68	19.66	10.19	29.85	46.30
Guy et al. (1985)	486	0	0	5.35	55.89	15.07	61.24	0
Teplin et al. 1996	1,272	0	0	174.26	22.90	27.98	50.88	190.80
Ditton 1999	6,133	999.68	0	0	0	0	0	0
Number with Disorder	8,875	999.68	25.99	211.29	150.37	55.21	145.91	244.11
Total Study N	1,470	6,133	183	2,559	2,742	2,559	2,559	2,073
Total Prevalence Estimate		16.30%	14.20%	8.26%	5.48%	2.16%	5.70%	11.78%

The prison prevalence estimate of 15% corresponds to that found in PAC's literature review, but the jail prevalence of 12% is lower than expected, despite the use of recent studies. This result may well reflect the difficulty, given the fluid jail population, of conducting prevalence studies in this population. The jail estimate, therefore, should be considered conservative.

The estimated total of SMI jail and prison inmates is 3,826. Results by RSN and by county are displayed in Tables 5.4 and 5.5.

Discussion

Gender Differences

There is some evidence that women in prisons and jails show higher rates of mental illness than men do, because they represent a small proportion of inmates (7% in the Washington prisons). However, it was decided that results would be unaffected by combining the two groups.

Comparison with Nationwide Study

There was discussion about using estimates from the Bureau of Justice Statistics of the National Institute of Justice (BJS; Ditton, 1999). This widely cited study reported prevalence of 16.2% for prison populations and 16.3% for jail populations. These estimates, however, can be criticized on several grounds:

- The estimates were derived from inmates' responses to two questions in a larger study: "Do you have a mental or emotional condition," and "Have you ever-stayed overnight in a mental hospital?"
- The study did not use standard methods of psychiatric epidemiology (such as those based on DSM).
- The questions asked in this study may not reflect a current need for treatment. The PEMINS survey of need for mental health services is a point prevalence study, i.e., it counted only those who currently needed services, rather than applying a lifetime prevalence standard implied by the BJS instrument.

Table 5.4
Serious Mental Illness Estimates for Jails and Prisons by RSN

Serious Mental Illness Estimates for Jails and Prisons by RSN								
RSN	Average Daily Population, City + County Jails ¹	# Jail SMI at 12%	# of DOC/Prison Resident Inmates ²	# DOC/Prison SMI at 15%	Total # Inmates	All Corrections SMI	Total Pop (2000 Census)	% SMI to Population
Chelan-Douglas	281	34	264	40	545	73	99,219	0.074
Clark County	716	86	881	132	1,597	218	345,238	0.063
Grays Harbor	154	19	228	34	382	53	67,194	0.078
Greater Columbia	1,802	216	1,539	231	3,341	447	599,730	0.075
King County	3,313	398	4,183	627	7,496	1,025	1,737,034	0.059
North Central	329	39	365	55	694	94	130,690	0.072
North Sound	1,654	199	1,804	271	3,458	469	961,452	0.049
Northeast	104	12	142	21	246	34	69,242	0.049
Peninsula	439	53	786	118	1,225	171	322,447	0.053
Pierce County	1,329	159	2,589	388	3,918	548	700,820	0.078
Southwest	305	37	515	77	820	114	92,948	0.123
Spokane County	617	74	973	146	1,590	220	417,939	0.053
Thurston-Mason	586	70	938	141	1,524	211	256,760	0.082
Timberlands	243	29	518	78	761	107	93,408	0.114
Other/Unknown	0	0	289	43	289	43	0	n/a
Total	11,870	1,424	16,014	2,402	27,884	3,826	5,894,121	0.065

¹Jail Average Daily Population data provided by the Washington Association of Sheriffs and Police Chiefs for calendar year 2001.
²Prison data provided by the State of Washington Department of Corrections Planning and Research Section for June 30, 2002.

**Table 5.5
Serious Mental Illness Estimates for Jails and Prisons by County**

Serious Mental Illness Estimates for Jails and Prisons by County								
RSN	Average Daily Population, City + County Jails ¹	# Jail SMI at 12%	# of DOC/Prison Resident Inmates ²	# DOC/Prison SMI at 15%	Total # Inmates	All Corrections SMI	Total Pop (2000 Census)	% SMI to Population
Adams	17	2	36	5	53	7	16,428	0.045
Asotin	29	3	76	11	105	15	20,551	0.072
Benton	357	43	331	50	688	92	142,475	0.065
Chelan	281	34	205	31	486	65	66,616	0.097
Clallam	129	15	112	17	241	32	64,525	0.050
Clark	716	86	881	132	1,597	218	345,238	0.063
Columbia	4	1	7	1	11	2	4,064	0.038
Cowlitz	305	37	515	77	820	114	92,948	0.123
Douglas	0	0	59	9	59	9	32,603	0.027
Ferry	18	2	19	3	37	5	7,260	0.069
Franklin	160	19	212	32	372	51	49,347	0.103
Garfield	4	1	2	0	6	1	2,397	0.034
Grant	199	24	229	34	428	58	74,698	0.078
Grays Harbor	154	19	228	34	382	53	67,194	0.078
Island	80	10	71	11	151	20	71,558	0.028
Jefferson	45	5	34	5	79	10	25,953	0.040
King	3,313	398	4,183	627	7,496	1,025	1,737,034	0.059
Kitsap	266	32	640	96	906	128	231,969	0.055
Kittitas	91	11	56	8	147	19	33,362	0.058
Klickitat	50	6	52	8	102	14	19,161	0.072
Lewis	202	24	439	66	641	90	68,600	0.131
Lincoln	18	2	18	3	36	5	10,184	0.048
Mason	158	19	201	30	359	49	49,405	0.099
Okanogan	113	14	100	15	213	29	39,564	0.072
Pacific	33	4	63	9	96	13	20,984	0.064
Pend Oreille	20	2	21	3	41	6	11,732	0.048
Pierce	1,329	159	2,589	388	3,918	548	700,820	0.078
San Juan	0	0	19	3	19	3	14,077	0.020
Skagit	216	26	195	29	411	55	102,979	0.054
Skamania	24	3	33	5	57	8	9,872	0.079
Snohomish	1,132	136	1,218	183	2,350	318	606,024	0.053
Spokane	617	74	973	146	1,590	220	417,939	0.053
Stevens	47	6	84	13	131	18	40,066	0.046
Thurston	428	51	737	111	1,165	162	207,355	0.078
Wahkiakum	8	1	16	2	24	3	3,824	0.087
Walla Walla	88	11	147	22	235	33	55,180	0.059
Whatcom	226	27	301	45	527	72	166,814	0.043
Whitman	34	4	35	5	69	9	40,740	0.023
Yakima	961	115	588	88	1,549	204	222,581	0.091
Juvenile			15	2	15	2	n/a	n/a
Border			5	1	5	1	n/a	n/a

Comparison with Department Of Corrections Study

A University of Washington (UW) study on the prevalence of SMI in Washington prisons was recently conducted under the auspices of the Department of Corrections (DOC). Although unpublished, the results have been accepted by DOC and were made available to this project. This study attempted to identify all SMI offenders in prison as of June 2002, using all available data: DOC's computerized records, case-by-case medical chart reviews, and consultations with mental health staff. The following

definition of SMI was applied: “A substantial disorder of thought or mood which significantly impairs judgment, behavior, capacity to recognize reality or cope with the ordinary demands of life within the prison environment and is manifested by substantial pain or disability.” The definition of SMI in the UW-DOC study reflects the practical realities of prison life; in particular, a shortage of psychiatrists and a management focus on behavior rather than diagnosis. It also reflects a concern with resources and is directed to identifying inmates for whom active treatment is currently constitutionally required on grounds of medical necessity. It therefore represents a relatively narrow definition of need for mental health services.

The UW-DOC study yielded an overall documented prevalence of 10.3%, but this estimate includes the reception center, where mental illness has not yet been documented for incoming inmates, as well as free-standing minimum facilities that also provide little documentation. The 13% estimate in major prisons comes closer to the purposes of the statewide prevalence study.

These results suggest that the 15% result in the prevalence study represents a conservative, defensible medium-band estimate of mental health service need among prisoners.

Significance

Our results show that adding the prison and jail estimates makes a noticeable but small difference to the SMI percentage in the total population, 0.065% overall, and that variations in how this increment is distributed across RSNs make little difference to their relative shares of the state SMI population. Nevertheless, persons with mental illness in prisons and jails should be included in SMI prevalence estimates because they represent an urgent need for services when they return from prisons and jails to our communities.

Incarcerated Children

Introduction and Background

Children incarcerated in juvenile detention facilities have much higher rates of SED than do children in general (Teplin, 2002). While low in numbers, this group of children presents intense need for mental health service.

PAC reviewed literature on estimates of SED in children (see Chapter 3). In that review, it became apparent that few studies included incarcerated children. When PAC applied the MECA and GSMS (Shaffer et al., 1996; Costello et al., 1996) to estimate rates of SED in children, it was evident that rates among incarcerated children were not included in the estimates. PAC decided, therefore, to include incarcerated children as a separate group in the revised prevalence estimates.

Literature Review

Many articles reviewed for this study (see Appendix G for a complete listing) report a paucity of literature describing SED among children in detention facilities, particularly studies of prevalence. Differences in the kinds of symptoms and conditions that are considered SED result in widely variant estimates of rates of SED, ranging from 20% to more than 70%. The best study is that of Teplin (2002), which found that about 60% of boys and 68% of girls had diagnosis-specific impairment for one or more psychiatric disorders.

Methodology

Denominator

Data for this analysis were provided by the State of Washington's Juvenile Rehabilitation Administration (JRA). Data covered unduplicated youth admitted to state-run detention facilities during calendar year 2001. Tribally adjudicated youth, children in community facilities such as group homes, and youth with short-term admissions to

local detention facilities were not included. Local facility admissions were not included because communities differ in how children are adjudicated, and therefore which children are counted as incarcerated. As a result, regional differences in the rates of incarceration were too inconsistent to produce reliable estimates of the numbers of children in local detention facilities. While PAC concluded that these numbers could not be included, it should be noted that the results are likely to undercount the numbers of incarcerated children.

Numerator

To assess the effect of widely varying prevalence estimates, staff developed a spreadsheet that projected numbers of incarcerated children with SED by applying the range of prevalence estimates suggested in the literature--20%, 30%, 40%, and 60%--to the data supplied by facilities for calendar year 2001. Based on these results and the results of the Teplin, et al., study (2002), PAC adopted a prevalence rate of 60%, which was applied to the JRA data. PAC decision was based on the merit of the Teplin study, and was designed to serve as an adjustment for the undercount of incarcerated children due to exclusion of local detention facilities.

Results

Tables 6.1 and 6.2 show results by RSN and by county. Applying PAC's chosen methods yielded an estimate of approximately 730 SED children in juvenile detention facilities statewide. Individual RSN estimates ranged from a high of 240 incarcerated children with SED in King County RSN to a low of 12 children in Northeast RSN. As predicted, the proportion of incarcerated children with SED in relation to the total population in each region was very small. Results by county show very similar patterns, with King County showing the highest number of incarcerated youth with SED and Franklin and Lincoln Counties showing no incarcerated youth. The overall number of incarcerated children with SED is too low to cause significant differences in overall prevalence numbers.

Table 6.1
Prevalence Estimates for SED in Incarcerated Children by RSN

Table 6.1				
Prevalence Estimates for SED in Incarcerated Children by RSN				
RSN	# of Youth¹	# SED at 60%	Total Pop (2000 Census)	% SED to Population
Chelan-Douglas	37	22	99,219	0.022
Clark County	65	39	345,238	0.011
Grays Harbor	25	15	67,194	0.022
Greater Columbia	138	83	599,730	0.014
King County	240	144	1,737,034	0.008
North Central	41	25	130,690	0.019
North Sound	199	119	961,452	0.012
Northeast	12	7	69,242	0.010
Peninsula	57	34	322,447	0.011
Pierce County	181	109	700,820	0.015
Southwest	33	20	92,948	0.021
Spokane County	44	26	417,939	0.006
Thurston-Mason	104	62	256,760	0.024
Timberlands	41	25	93,408	0.026
Unknown	0	0	0	n/a
Total	1217	730	5,894,121	0.012

¹ Does not include youth in community facilities or tribally adjudicated youth. Data provided by the State of Washington Juvenile Rehabilitation Administration for calendar year 2001.

Table 6.2
Prevalence Estimates for SED in Incarcerated Children by County

Prevalence Estimates for SED in Incarcerated Children by County				
County	# of Youth¹	# SED at 60%	Total Pop (2000 Census)	% SED to Pop
Adams	6	4	16,428	0.022
Asotin	5	3	20,551	0.015
Benton	31	19	142,475	0.013
Chelan	30	18	66,616	0.027
Clallam	11	7	64,525	0.010
Clark	65	39	345,238	0.011
Columbia	5	3	4,064	0.074
Cowlitz	33	20	92,948	0.021
Douglas	7	4	32,603	0.013
Ferry	0	0	7,260	0.000
Franklin	5	3	49,347	0.006
Garfield	0	0	2,397	0.000
Grant	21	13	74,698	0.017
Grays Harbor	25	15	67,194	0.022
Island	8	5	71,558	0.007
Jefferson	8	5	25,953	0.018
King	240	144	1,737,034	0.008
Kitsap	38	23	231,969	0.010
Kittitas	3	2	33,362	0.005
Klickitat	6	4	19,161	0.019
Lewis	30	18	68,600	0.026
Lincoln	0	0	10,184	0.000
Mason	23	14	49,405	0.028
Okanogan	14	8	39,564	0.021
Pacific	9	5	20,984	0.026
Pend Oreille	10	6	11,732	0.051
Pierce	181	109	700,820	0.015
San Juan	2	1	14,077	0.009
Skagit	25	15	102,979	0.015
Skamania	3	2	9,872	0.018
Snohomish	136	82	606,024	0.013
Spokane	44	26	417,939	0.006
Stevens	2	1	40,066	0.003
Thurston	81	49	207,355	0.023
Wahkiakum	2	1	3,824	0.031
Walla Walla	11	7	55,180	0.012
Whatcom	28	17	166,814	0.010
Whitman	3	2	40,740	0.004
Yakima	66	40	222,581	0.018
Unknown	0	0	0	n/a
Total	1,217	730	5,894,121	0.012
¹ Does not include youth in community facilities or tribally adjudicated youth. Data provided by the State of Washington Juvenile Rehabilitation Administration for calendar year 2001.				

Inpatient Psychiatric Settings

Introduction and Background

As mentioned previously, most prevalence studies use telephone surveys to estimate the number of individuals with a given disorder. Phone surveys reach individuals in households. Those who aren't living in households at the time of the survey are excluded from the study population. In the PEMINS study one group of individuals that was not included in the telephone survey were those committed to state hospitals and community psychiatric hospital settings.

The number of persons who are in psychiatric hospitals is not large, and has been shrinking in recent years due to ward closures and an increased emphasis on outpatient treatment. The general consensus was that 100% of the individuals counted in inpatient facilities should be assumed mentally ill in the current study. There was some early consideration of excluding geriatric clients and those with cognitive impairments as the result of head injuries or organic brain disorders. But the group concluded that these were the responsibility of the RSNs and met the functional impairment criterion for SMI. Therefore, all persons committed to inpatient facilities were to be considered SMI, or SED if under the age of 18.

Initially, publicly funded psychiatric hospitals were the focus for this population. These included persons utilizing the state hospitals, the Program for Adaptive Living Skills (PALS), community psychiatric hospitals, and Evaluation and Treatment facilities. In addition, the project's Expert Panel recommended the inclusion of estimates for children in the state's Children's Long-term Inpatient Program (CLIP) facilities. These facilities provide long-term inpatient care for children age five to 17.

Summary of Literature Reviewed

A literature review was not conducted on this population. Most studies assume that close to 100% of adults served in inpatient facilities are suffering from SMI during their inpatient treatment episode; otherwise, they would not be there. Likewise, 100% of children treated in inpatient facilities are assumed to be suffering from SED during their inpatient treatment episode.

Methodological Issues

Numerator

The proportion of adults with SMI and children with SED in inpatient settings was assumed to be 100%. However, some committee members voiced concerns that the inpatient population also included those with dementia, traumatic brain injuries, and developmental disabilities, resulting in a prevalence rate somewhat less than 100%. The issue was addressed with the Expert Panel when they convened. The Expert Panel agreed that not all patients in state and community hospitals fit the definitions of SMI/SED. However, because RSNs are financially responsible for the inpatient utilization of these individuals, it was argued that these patients should be considered in our regional estimates of the prevalence of SMI/SED.

Following discussion, the committee agreed to use a prevalence rate estimate of 100% for hospitals, because (a) regardless of diagnosis, the RSNs remain responsible for all those in all hospitals, and (b) the number who are developmentally disabled or cognitively impaired without SMI is likely to be small and proportionally distributed across the RSNs.

Denominator

In order to calculate a point-estimate of the population residing in inpatient settings, PAC decided that June 30, 2002 would be the target date for determining the count of individuals in this category. During initial data runs conducted by the MHD, it was noted that June 30, 2002 was a Sunday and that censuses for all hospital categories were lowest on that day of the week and highest on Mondays. An examination of the hospital census data indicated that Wednesdays are generally the most “stable” day of the week in terms of daily fluctuations. PAC recommended using June 26, 2002 as our target date. However, after initial analyses, it was discovered that not all databases had complete data for June 26, 2002. Consequently, to obtain more complete data the committee agreed to accept May 29, 2002 as the target date upon which to calculate the point-estimates.

After the initial point estimates were calculated, PAC expressed concern that the MHD data may not include all of the individuals receiving inpatient treatment for mental illness. For instance, persons who were hospitalized through private insurance or outside of the RSN system would not be included in the MHD data. The committee requested that MHD obtain information from non-MHD data sources that could be used to estimate the number of individuals with SMI/SED who reside in non-publicly funded hospitals. These numbers would be included with the MHD data to get a comprehensive number of individuals housed in inpatient facilities on a given night. MHD staff explored inpatient data available from several sources. This exploration found that the Comprehensive Hospital Abstract Reporting System (CHARS) database

available through the Department of Health was the most complete database for all psychiatric hospitalizations.

For non-Medical Assistance Administration (MAA)-funded hospitals, data were obtained from the Department of Health CHARS database. As noted above, May 29, 2002 was used as the index date to calculate the point prevalence for this subgroup.

PAC raised the possibility that individuals could be duplicated between the community hospital data and the non-MAA funded hospital data. As a verification step, two committee members calculated the census for two community hospitals for May 29, 2002. The committee reviewed the numbers and agreed that the small differences between the two reported community hospital reported counts and the MHD calculated counts based on MHD plus CHARS data were not significant and that the MHD calculations could be used for this analysis.

To summarize, the following sources were used to calculate the point estimate of individuals who were residing in inpatient facilities due to SMI or SED:

1. CHARS data were pulled for Washington residents who were in an inpatient facility on May 29, 2002 with a primary diagnosis of mental illness.
2. The MHD database was used to pull Washington residents who received publicly funded inpatient care on May 29, 2002 in the two state hospitals, Evaluation and Treatment Centers, community hospitals¹, the PALS program, and CLIP facilities (including the Child Study and Treatment Center).

Additional Issues

There was discussion within PAC regarding whether to include children with the hospital data or with the children's data. A cross tabulation of patient age categories with hospital type was presented and appears as Table 7.1 below. Subsequent discussion highlighted the small percentage of the hospital population represented by children (9%) as well as possible overlap with the non-institutionalized children's estimate. In the final analysis, the group decided to include children with the hospital data.

¹ Data for Puget Sound Behavioral Health in Tacoma, Washington, which has its own data system, were merged with MHD data for community hospitals.

**Table 7.1
Patients with a Mental Health Diagnosis by Age Category and Hospital Type¹**

Patients with a Mental Health Diagnosis by Age Category and Hospital, May 29, 2002					
Hospital		Age Category			Total
		17 or younger	18 to 64	65 or older	
CLIP	Count	46	7		53
	% within HOSP	87	13		100
	% within AGE	25	0		3
COMMUNITY	Count	48	227	12	287
	% within HOSP	17	79	4	100
	% within AGE	26	14	4	14
CSTC	Count	61			61
	% within HOSP	100			100
	% within AGE	33			3
E&T	Count	8	76	9	93
	% within HOSP	9	82	10	100
	% within AGE	4	5	3	4
ESH	Count		226	74	300
	% within HOSP		75	25	100
	% within AGE		14	27	15
PALS	Count		120	3	123
	% within HOSP		98	2	100
	% within AGE		7	1	6
NON-MAA	Count	24	247	33	304
	% within HOSP	8	81	11	100
	% within AGE	13	15	12	15
WSH	Count		700	146	846
	% within HOSP		83	17	100
	% within AGE		44	53	41
TOTAL	Count	187	1,603	277	2,067
	% within HOSP	9	78	13	100
	% within AGE	100	100	100	100

¹ The age crosstab was run using MHD data for CSTC and CLIPs rather than on CSTC's and CLIPs' own data. Therefore, the total count differs slightly from that in the final estimate spreadsheet.

Results

Table 7.2 below presents the final data calculation for the estimate of individuals with SMI and SED for the hospital sub-group. Data is presented at the RSN-level only, because county level data was not available from several of the inpatient data sources. Because our efforts were predicated on the assumption that 100% of individuals in hospitals have SMI or SED, all individuals represented in the table are included in the prevalence estimate.

Table 7.2
Number of Patients with a Mental Health Diagnosis by Hospital Type

Number of Patients with a Mental Health Diagnosis By Hospital Type and RSN May 29, 2002											
RSN	ESH	WSH	CSTC	CLIP	PALS	Community Hospitals	E&Ts	Non-MAA-Funded Hospitals	TOTAL	Total Pop (2000 Census)	% SMI to Population
Chelan-Douglas	16		1			5		4	26	99,219	0.026
Clark		58	2		4	8		6	78	345,238	0.023
Greater Columbia	81		5	5		28		27	146	599,730	0.024
Grays Harbor		23		1	3	4		2	33	67,194	0.049
King	2	307	15	10	60	96	44	108	642	1,737,034	0.037
North Central	26			2		6		6	40	130,690	0.031
Northeast	14					4		3	21	69,242	0.030
North Sound		100	8	19	9	49	24	50	259	961,452	0.027
Peninsula	1	55	10	1	7	6	25	8	113	322,447	0.035
Pierce	3	212	16		30	33		41	335	700,820	0.048
Southwest		20	2	2	3	11		6	44	92,948	0.047
Spokane	156	3	2	11		30		37	239	417,939	0.057
Timberlands	1	21			2			3	27	93,408	0.029
Thurston-Mason		47	1	2	5	3		11	69	256,760	0.027
TOTAL	300	846	62	53	123	283	93	312	2072	5,894,121	0.035

Residential Beds in Communities

Why Study This Group?

Another group of people that may be overlooked in studies of the prevalence of SMI are those residing in residential facilities in communities. The original PEMINS study examined prevalence in households, and made adjustments to consider those in group quarters and hospitals. U.S. Census definitions of these facilities, including hospitals, nursing homes, college dormitories, and military barracks, were used to make these adjustments in the original PEMINS study. Early on in its deliberations, members of PAC expressed concern that this view of alternate living quarters was too restrictive and might exclude a large number of SMI individuals residing in communities who were not likely to be reached through a telephone survey, and thus not included in household survey estimates.

There were also concerns that this group was often seen as consisting primarily of nursing home residents, when in fact there are a variety of residential beds in communities and these beds are likely to house large numbers of SMI persons. These include individuals in a variety of group homes, congregate care facilities, adult family homes, apartments, single-occupancy rooms, and other congregate and sole occupancy quarters where residents do not have personal telephones or are highly unlikely to do so.

Another rationale for studying this group was that even in nursing homes, the RSNs support care for a number of SMI persons. There were also concerns that it is often assumed that nursing home residents are elderly Medicare clients of the Aging and Disability Services Administration (ADSA) of DSHS, and are not MHD clients. The view of RSN and provider representatives on PAC was that a sizable proportion of these individuals are also provided mental health services through the RSN.

Given these concerns, residents of community residential facilities were targeted for more in depth study by PAC.

Methodology

Denominator

An important first step in estimating the prevalence of those persons with SMI in residential programs and nursing homes was to identify the actual number of beds. Because these facilities and domiciles are funded and managed under a number of different agencies and administrations, total counts of persons in these facilities and programs were not readily available. As a starting point, two initial sources of data were considered. Results of a survey of RSNs conducted by the Professional Consulting Group (PCG) to study residential capacity as part of the Expanded Community Service (ECS) project were examined. As part of the PCG study, RSNs were asked to identify beds available in their communities to house the SMI. Another important source of data was obtained from the Research and Data Analysis Division (RDA) of DSHS. This office maintains the Client Services DataBase (CSDB); a comprehensive data set on all DSHS clients that records individual service use across all divisions of DSHS. These data include residential placements funded by ADSA. From these two sources, data were collected, juxtaposed, and presented to PAC in August and September of 2002 for consideration and review. These data appear below in Table 8.1.

Because state-funded residential care is administered primarily by the ADSA, and mental health services are the province of the MHD, it is possible to cross-tabulate service usage to examine (within the same year) the use of ADSA beds by mental health recipients. RDA generated statistics by county and statewide. Results are rolled up to RSN totals in Table 8.2. The results of this cross-tabulation showed that, statewide, 29% of those in adult residential facilities also received MHD-funded services from the RSNs. The overlap was 20% for adult family homes, and 18% in nursing homes.

Table 8.1
Number of Persons Using Beds in Communities

Organization	PCG Data				ADSA Data				
	Residential	Crisis Respite	Community Inpatient	State Hospitals	Adult Family Home	Adult Residential	All Adult Res (AFH +Other)	All Adult Comm. Beds Projected # SMI*	Nursing Homes
Chelan-Douglas RSN	35	4	1	7	50	60	110	27	480
Clark County RSN	46	5	9	45	325	55	380	81	1025
Grays Harbor RSN	5	10	1	24	25	35	60	15	375
Greater Columbia Behavioral Health RSN	140	19	15	45	445	180	625	141	2600
King County RSN	579	22	108	257	1500	330	1830	396	6575
North Central RSN	53	0	2	18	80	55	135	32	600
North Sound RSN	226	39	44	98	880	340	1220	275	3400
Northeast RSN	8	4	1	2	55	15	70	15	330
Peninsula RSN	25	0	18	46	205	105	310	71	1530
Pierce County	398	0	43	223	515	410	925	222	2585
Southwest RSN	0	0	7	17	65	20	85	19	510
Spokane County RSN	235	8	23	141	530	180	710	158	2090
Thurston-Mason RSN	22	0	6	41	200	140	340	81	765
Timberlands RSN	9	3	2	24	80	80	160	39	630
Total	1781	114	280	988	4955	2005	6960	1572	23495

*Includes adult family homes and all other adult residential beds; excludes nursing homes, state hospitals, community hospitals, and E&Ts.

**Table 8.2
Aging and Disability Services (ADSA) Data and SMI Projections**

Aging and Disability Services (ADSA) Data and SMI Projections									
Organization	Adult Family Home	Adult Residential	All Adult (compare to PCG Res)	Nursing Homes	Projected SMI in AFHs(Factor=.2)	Projected SMI in Adult Res(.29)	All Adult Comm. Beds Projected # SMI*	Projected Nursing Home SMI based on CSDB Estimate	Total SMI-Local Beds**
Chelan-Douglas RSN	50	60	110	480	10	17	27	91	114
Clark County RSN	325	55	380	1025	65	16	81	195	265
Grays Harbor RSN	25	35	60	375	5	10	15	71	83
Greater Columbia Behavioral Health RSN	445	180	625	2600	89	52	141	494	609
King County RSN	1500	330	1830	6575	300	96	396	1249	1579
North Central RSN	80	55	135	600	16	16	32	114	140
North Sound RSN	880	340	1220	3400	176	99	275	646	887
Northeast RSN	55	15	70	330	11	4	15	63	75
Peninsula RSN	205	105	310	1530	41	30	71	291	347
Pierce County	515	410	925	2585	103	119	222	491	687
Southwest RSN	65	20	85	510	13	6	19	97	111
Spokane County RSN	530	180	710	2090	106	52	158	397	534
Thurston-Mason RSN	200	140	340	765	40	41	81	145	218
Timberlands RSN	80	80	160	630	16	23	39	120	153
Total	4955	2005	6960	23495	991	581	1572	4464	5802
*Includes adult family homes and all other adult residential beds; excludes nursing homes, state hospitals, community hospitals, and E&Ts.									
** Includes adult family homes and all other adult residential beds; excludes nursing homes, state hospitals, community hospitals, and E&Ts.									

PAC considered these data and discussed their implications thoroughly. It was determined that the overlap (if any) between the mental health beds reported in the PCG Study and ADSA-funded beds in communities (adult family homes, group homes of several types, and nursing homes) was not well understood. A sizable proportion of ADSA-funded beds (about 20%) are occupied by recipients who have at some point in the year received state-funded mental health services. It also was not clear that the number of beds funded by the RSNs reflected all beds available in the community for SMI persons. Providers on PAC reported that there was an array of housing for the SMI that did not fall under RSN administration or oversight, and thus was not included in the numbers reported by RSNs to PCG for its study, or in data reported by ADSA. These residential beds included those sponsored by local governments, religious and charitable organizations, and private entities that work with providers to secure housing for the SMI in their communities. Subsequent examination showed a varied array of arrangements employed to house the SMI in Washington State communities. One example was a local motel in Eastern Washington that provided several motel rooms during the weekdays to a local provider. On weekends, clients were moved elsewhere as the motel prepared for its usual weekend trade. A number of arrangements, some formal and some more informal, were found as providers worked with local businesses, nonprofit agencies, citizens, and advocates to find suitable housing for the SMI. All providers reported that even with these arrangements, local housing was woefully inadequate. The point, for purposes of this discussion, is that a number of creative strategies are used to maximize local bed availability. It is also evident that individuals in these housing arrangements would not be captured in a telephone survey.

From the discussion, PAC identified three groupings of residential beds in communities requiring enumeration:

1. Beds known to providers and the RSNs (usually funded through the RSN). These are the beds reported in the PCG Study.
2. Beds known to providers, but not necessarily known to the RSNs and not funded through the RSNs.
3. ADSA beds that may be occupied by persons who also receive mental health services.

Key Informant Survey

PAC concluded that a better understanding of these beds was essential to estimating the SMI in communities. However, an exhaustive inventory of all available beds in the state was beyond the scope and resources available for this study. Discussions led to the decision to examine a small subset of RSNs in detail to get a better sense of these relationships. The goals were to inventory residential beds in the community and to determine the relationship between these beds and RSN funding. It was the consensus of PAC that this be estimated through direct communication with key informants in the provider community.

Two RSNs were selected for this study: King County RSN and Greater Columbia Behavioral Healthcare RSN. These two RSNs were selected for several reasons. There was a preference for including both an urban and a rural region, and for including both a single-county and a larger geographically dispersed RSN. Selection of these two RSNs also capitalized on the fact that taken together they constitute close to half of the state's population and almost half of the state's land mass. Also, these selections capitalized on efforts already under way in these regions to "inventory" available beds for SMI persons.

Cathy Gaylord, Chief Executive Officer for the Washington Community Mental Health Council (WCMHC) was instrumental in providing support and encouraging key providers to participate in the survey. Rick Weaver, President and Chief Executive Officer at Central Washington Comprehensive Mental Health in Yakima, and Mike Nielson, Housing Director at Community Psychiatric Clinic in Seattle (and chair of a Seattle Task Force on Housing for the Mentally Ill) were also instrumental in obtaining and interpreting data.

Project staff reviewed information from a comprehensive bed inventory conducted by the King County Providers Council in April 2002, and discussed these with the study authors. Project staff conducted a study to obtain similar information from Greater Columbia RSN providers through telephone interviews and review of documents and reports. These efforts were completed in the fall of 2002.

Results of the Key Informant Survey

The results of these efforts are summarized in the following section. Detailed analysis of results for the two RSNs can be found in Appendix H. From examination and subsequent discussion of Table 8.1 and the results of the key informant survey, PAC reached the following conclusions regarding the inclusion of community residential beds and the prevalence of SMI:

- The number of community residential beds estimated from the ADSA-MHD cross tabulations from RDA, the beds reported in the PCG study, and the beds reported by the key informants are independent. Therefore, they can be summed to give the total number of community residential beds in Washington State. They do not duplicate counts.
- RSN-funded beds represented 30.5% of all community beds known to mental health providers in King County.
- RSN-funded beds represented 50.4% of all community beds known to mental health providers in Greater Columbia RSN.
- The PCG data counts are accurate assessments of RSN-funded beds, and it is reasonable to estimate that these beds represent about 40% of all beds occupied by the SMI in the other RSNs, as 40% is the approximate mid-point between the range observed in the two RSNs studied (30.5% and 50.4%).
- PAC chose to use actual percentages for King and Greater Columbia RSNs, and 40% to estimate the number of community beds in the others.

- Occupancy rates for these beds by the SMI vary by county and type of bed, but are conservatively estimated to be 90% across all community beds, based on input from key informants interviewed by project staff.
- The methodology used may not have generated an accurate count for Southwest RSN (Cowlitz County), which reported no beds in the original PCG study. The PCG study was done while Southwest RSN management was in transition and results might underestimate the number of beds in this RSN. However, the number would be expected to be relatively small in any case.
- Seattle is an anomaly in the State of Washington and the U.S. The housing levy approved and paid for by Seattle property owners provides funds and local match for federal housing funds (not available in most communities). Thus their percentage (30.5%) is lower than others, owing to this unique willingness of taxpayers to fund these services.

Results

Final Estimates of Serious Mental Illness in Community Residential Beds

Following final consensus within PAC on the above points, project staff conducted final calculations, which are tabulated in Table 8.3. Taking the PCG counts of residential and crisis respite beds from Table 8.1 and dividing by the appropriate percentage (0.305 for King County RSN, 0.504 for Greater Columbia RSN, and 0.40 for all others) yields the estimates in the column labeled "Projected Community Beds." The next columns add the beds resulting from the cross-tabulation of ADSA and MHD services (from Table 8.2) to obtain the "All Beds-All Sources" count. The last column then applies the occupancy assumption (at any given time 90% of available beds are used by the mentally ill) to generate the final estimates that will be used for this study.

One caveat and a rejoinder are warranted. The data from RDA on the cross-tabulation of ADSA-funded beds is a yearly total, not a one-night total. Counts for a given day, or even month, are not available in the CSDB database. To the extent that these beds "turn over" often, the numbers could be inflated. Project staff reviewed the definitions and criteria for these beds, and found that these are generally long-term beds, with normal stays of longer than a year. Length-of-stay statistics could not be obtained. In review with PAC, the amount of "churning" in these beds was not anticipated to be significant. Also, the 90% occupancy criterion was one that some PAC members viewed as overly conservative. Many members felt that in many communities there was never a bed unused. The Seattle Housing Coalition used a 90% occupancy rate and that was adopted for this study. Using this conservative occupancy rate attenuates any overestimation that might result for turnover in ADSA-funded beds used as part of the projections in this study.

Numerator

Making the assumption that anyone qualifying for state-funded mental health services met the criteria for SMI, it was possible to estimate the number of SMI persons in each of these facilities by taking the actual count of persons served and multiplying by the corresponding rate. This underlying assumption was viewed as plausible by PAC. Meeting criteria for services was deemed a more restrictive criterion than that employed to meet the criteria for SMI as defined by final SAMHSA rule in the Federal Register (Federal Register 1998) or than the more restrictive definition used in the PEMINS study for defining the medium need band (see Chapter 2). Because these data were available by county, we were then able to aggregate these into RSN totals. These data appear in the columns on the right hand side of Table 8.2. and Table 8.3.

**Table 8.3
Prevalence of Serious Mental Illness in Community Residential Beds by RSN**

Organization	RSN-Funded Beds (non ADSA)				ADSA Community Beds		ADSA Nursing Homes		Summary	
	Residential	Crisis Respite	Total Beds Excluding Hospitals	Projected Community Beds (non-ADSA) ^{1,2}	All ADSA Community Beds (Projected # SMI ³)	Total (RSN-Funded plus community Beds)	Nursing Homes (ADSA)	Nursing Home SMI based on CSDB estimates	All Beds from All Sources	Estimated # SMI based on 90% Occupancy ⁴
Chelan-Douglas RSN	35	4	39	98	27	125	480	91	216	194
Clark County RSN	46	5	51	128	81	208	1025	195	403	363
Grays Harbor RSN	5	10	15	38	15	53	375	71	124	112
Greater Columbia Behavioral Health RSN	140	19	159	294	141	436	2600	494	930	837
King County RSN	579	22	601	1970	396	2366	6575	1249	3615	3254
North Central RSN	53	0	53	133	32	164	600	114	278	251
North Sound RSN	226	39	265	663	275	937	3400	646	1583	1425
Northeast RSN	8	4	12	30	15	45	330	63	108	97
Peninsula RSN	25	0	25	63	71	134	1530	291	425	382
Pierce County	398	0	398	995	222	1217	2585	491	1708	1537
Southwest RSN	0	0	0	0	19	19	510	97	116	104
Spokane County RSN	235	8	243	608	158	766	2090	397	1163	1047
Thurston-Mason RSN	22	0	22	55	81	136	765	145	281	253
Timberlands RSN	9	3	12	30	39	69	630	120	189	170
			0	0		0		0	0	0
Total	1781	114	1895	4738	1572	6310	23495	4464	11139	10025

¹ Includes private pay, all HUD-funded beds/programs (McKinney, Section 8, other), SROs, rent subsidies, charitable organizations, and other congregate care.

² Based on study conducted by project staff identifying commonalities and differences in number of community beds reported in the PCG study, data collected by RSNs and providers, and beds funded through the Aging and Disability Services Administration (ADSA), as reported in the Client Services Data Base (CSDB) provided by the Research and Data Analysis (RDA) Division of DSHS. The group adopted using the dividers of 30.5% for King County, 50.4 % for Greater Columbia RSN, and 40% for all other RSNs for projecting total beds, from the RSN-submitted PCG counts.

³ Based on RDA CSDB data indicating that 20% of adult family home and 29% of community residential beds funded by ADSA are occupied by seriously mentally ill/seriously emotionally disturbed persons.

⁴ 90% a conservative estimate chosen by PAC based on interviews with key informants regarding community residential beds and group discussion at October 2002 meeting.

Other Groups Considered

Background

Several additional groups were discussed at length during PAC meetings. These groups included individuals who drift into service-rich communities, racial and ethnic minorities, and recent immigrants and refugees.

These groups are very important in any consideration of the prevalence of mental illness, and were extremely important to PAC. However, these groups are also extremely difficult to address through a household survey that uses telephone methodology to ask questions about current functioning and symptomatology. Questions about migration, population movement, immigration, trauma history, and acculturation are typically not asked in prevalence surveys. A few research projects have looked at this issue for small subsets, but few researchers have been able to conduct large-scale studies of these groups. Anecdotes abound about the impact of these groups on local service delivery systems; however, few studies have been conducted that quantify the level of these impacts on RSNs and statewide.

PAC looked at different ways to address these issues, but in the end found few methods available to determine reasonable and defensible estimates for these groups. The resources required to do a statewide study of these issues were well beyond the resources of the current study, and perhaps beyond the resources of a state governmental agency.

Although prevalence estimates related to drift and recent immigrants/refugees were not developed for this study, PAC felt strongly that it was important to include the issues related to these groups in this report. The issues inherent in these populations can potentially affect estimates of SMI in regions, but unfortunately we have no way of estimating the magnitude of those effects. This section is written to keep these populations apparent in the reader's mind, and to document the discussion that ensued in PAC. The following sections detail the issues, work, and thinking that went into each of these areas.

Geographic Drift

Introduction and Background

Early in the project, PAC and the Expert Panel considered adjusting the obtained prevalence estimates for geographic drift. Drift can take many forms:

- Drift from rural to urban areas. Consumers may migrate to urban service cores. The drift hypothesis proposes that persons with SMI drift from rural areas into urban ones.
- Drift across state or country borders because of easier access or greater availability of different services. For example, a provider in Vancouver, Washington, reports an increase in consumers crossing the border from Portland because of the mental health funding crisis that is affecting Oregon's mental health system. Another aspect of border drift is emphasized by providers at Washington's Canadian border, who report that individuals with SMI come to their areas expecting to move to Canada but get stopped at the border, and end up residing in their areas and requiring mental health services.
- Drift to the proximity of state psychiatric facilities. This phenomenon is illustrated by the following excerpt from *Blueprints for an Effective Mental Health System in Washington State* (2002):

"One aspect of prevalence that is difficult to quantify at the RSN level is the "magnet effect" experienced in some RSN's, most notably Pierce and Spokane Counties, where the state hospitals are located. (A similar effect is seen as well in other urban areas such as King and Clark Counties.) The delivery system developed more intensively around the state hospitals. For example, at the time the RSN's took over responsibility for boarding home care for their consumers, there were proportionately many more boarding home beds located in Spokane and Pierce Counties than suggested by the population base [Pierce County RSN Residential Planning Process committee materials, 1992], because the proprietors of these facilities established themselves close to the state hospitals. This has led to placement of consumers who originated from other counties into these residential facilities. Residential services are a critical component of service planning, especially for long-term state hospital residents. As King expanded its residential and service capacity, it also experienced in-migration of consumers.

One of the solutions to this dilemma is the development of adequate residential capacity, including safe and affordable housing, in each RSN, so consumers can return to and/or remain in their own communities."

Literature Review

Since the early 1800's, urban populations have been described as having higher rates of SMI than rural populations. Torrey & Bowler (1990) and Torrey et al., (1997)

analyzed U.S. data from 1880-1963 and found correlations of .52 to .97 between urban beds and SMI. Van Os et al., (2001) found that persons who lived in cities with more than 2,500 people per square kilometer were at higher risk of mental disorders than persons who lived in areas with fewer than 500 persons per square kilometer. Marcelis et al., (1998) found that 1.3% of persons in rural areas of the Netherlands suffered from SMI compared to prevalence rates of 2.3% in urban areas. While definitions of urban and rural population varied across investigations, perhaps the best operational definition of urban/rural was presented by Dutch researchers Marcelis et al., and Van Os et al., who applied census information to create discrete SMI prevalence categories based upon persons per kilometer. Though a positive association between urban residence and SMI exists, no agreed-upon causal explanation of these differences has been established.

The most researched and controversial of these explanations is the drift hypothesis. The drift hypothesis states that those persons with SMI living in rural areas drift to urban areas as a result of their illness. Some literature supports this hypothesis as a primary cause of high urban rates of SMI (Breslow et al., 1998; Davey & Giles, 1979; McNaught et al., 1995). McNaught et al., found that four out of five persons with schizophrenia in inner London were born outside of the city. They also found that actively psychotic males were the most likely to drift to an urban environment. Marcelis et al., (1998) observed that young men seem to be at increased risk of SMI when living in an urban setting. This evidence suggests that young males with active psychosis may be responsible for higher rates of SMI in urban areas. However, Lewis and colleagues (1992) point out that young single men in general are more likely to live in cities than in rural environments.

Another possible explanation for the urban drift hypothesis is Jarvis' law, which states that rates of SMI are negatively correlated with distance from psychiatric institutions (Breslow et al., 1998; Davey & Giles, 1979).

Psychiatric facilities are often located in or near urban areas and may account for increased rates of SMI in urban areas. Persons with SMI may drift towards these psychiatric facilities in order to access services that can only be offered by these institutions.

Breslow et al. investigated the effects of a psychiatric emergency service (PES) in Albany, New York on local and surrounding SMI prevalence. Thirty percent of persons who received services at the PES, but did not originally live in Albany, moved to Albany. However, only 5% of PES patients who originally lived in Albany moved to outlying rural areas. In addition, persons living in rural counties were less likely to move to Albany if they were receiving outpatient services in their rural communities and had diagnoses of schizophrenia/schizoaffective disorder. In contrast, rural patients were more likely to move to Albany if they also had a co-morbid personality disorder or substance abuse disorder.

Davey and Giles conducted a similar investigation in Tasmania. These authors investigated Jarvis' law by comparing rates of admission for mental illness in six geographic zones around the state psychiatric hospital. Zones ranged from 20 km (zone 1) to 500 km (zone 5). Admissions in zones 1 and 5 were 4.5/1,000 and 0.77/1,000 respectively. Only admissions in zone 1 were significantly above the national average. Davey and Giles suggest that this is evidence for Jarvis' law.

Countering the drift hypothesis is the residue hypothesis, which states that higher urban rates of SMI are a result of healthy people vacating urban areas in search of rural or suburban lifestyles. While this hypothesis makes intuitive sense, it has not received research support.

While social drift has received limited empirical support, some studies investigating urban and rural differences in SMI have supported the social causation hypothesis (Fox, 1990; Lewis et al., 1992; Marcelis et al., 1999; Os et al., 2001). That is, the stressors related to living in a city trigger a genetic predisposition resulting in high rates of SMI. Marcelis et al., found a correlation between urban birth and later onset of SMI. However, they did not find a correlation between urban residence at onset of illness and SMI, suggesting that drift was not a causal factor. Takei et al., (1995) found that only urban participants born in winter months had higher risks of SMI. These authors suggested that increased rates of influenza in cities might contribute to increased rates of urban SMI.

From an epidemiological perspective the "why" behind these differences may be less important for policy makers than the actual differences themselves. Findings of higher rates of SMI in urban areas do not, by themselves, provide rates of SMI accounted for by drift. Nor do they provide counts of the number of individuals who "drift" from one area to another. Furthermore, although SMI prevalence may be higher in urban areas, rural settings face unique challenges in providing treatment to individuals with SMI, such as geographic distance, stigma, transportation, and staff retention (Beeson et al., 1998). As mental health services have moved to a community-based service model, and additional funding given to rural areas to develop mental health service delivery systems, the effects of urban drift may have decreased.

Potential Methodologies

The topic of drift generated considerable discussion among the Expert Panelists. There was consensus that the measurement of "drift" poses similar issues regardless of the type of drift being considered. Discussion included the following points:

- Out-migration as well as in-migration must be considered. In other words, net migration is the primary interest.
- The migration of mentally ill adults and children must be considered within the context of overall population migration. Are drift patterns consistent with larger demographic movement? Do the migration patterns differ for Medicaid populations?
- Does drift vary by severity of illness, gender, marital status?
- What is the size of the drift effect across the state and by individual RSNs?

As a result of this discussion, two options were put forward for consideration:

- Medicaid databases could be analyzed to estimate the migration of Medicaid recipients and net migration by county, which could then be compared to overall population migration. While SSI Medicaid recipients would be an even better proxy for the SMI, SSI requires a stable address and therefore would not provide a good measure of movement.
- A survey of persons served by the RSNs could be conducted. This approach would allow some determination of severity of mental illness and yield information about where folks have migrated from and why. This option, however, would be costly.

PAC also considered using data from the state hospitals to examine drift. One representative suggested that a disproportionate number of individuals discharged from the state hospitals under Least Restrictive Alternatives (LRAs) remain in Pierce County—as high as 85%. Other committee members disagreed, reporting that although the initial LRA paperwork is completed and initiated in Pierce County, most of these individuals do go back to their RSN of origin. A provider representative stated that patients discharged from the PALS program at Western State Hospital (WSH) and the Center for Forensic Services at WSH are funneled into the nearby Lakewood area for monitoring ease and close proximity to WSH staff, especially the forensic cases. The committee member reported that this results in a disproportionate number of these patients in the Lakewood community. Another committee member cited a Pierce County study conducted in 2000. This study examined first hospitalizations, and showed that although over half of the patients were from outside Pierce County, these patients were discharged to Pierce County and not to their county of origin. However, a recent evaluation of state hospital discharges shows that the highest proportion of discharges go to King and Spokane Counties, and there is an MHD policy that patients be discharged back to the admitting RSN.

A suggestion was made to look at state hospital records for county/RSN of admission versus county/RSN of discharge, or to look at change in county/RSN at admission over time for those with multiple admissions. However, there are limitations in studying drift using the state hospital databases. The RSN of origin variable is overwritten with each new admission, thereby losing the history of changes over admissions.

Another suggestion made was to examine responses to questions asked in the key informant survey conducted for the homeless estimates (see Chapter 4). The following questions were included in that survey:

- Have you observed movement and shifting of the homeless population you serve?
- Within the last year, where would you say the majority of homeless and their families who come to your area come from?
- Within the last year, where would you say the majority of homeless and their families who have left your area gone to?

Although these questions were asked concerning homelessness, some researchers would assume that general “drift” principles would apply similarly to mental illness. From answers given by respondents in urban counties (which include the counties with state hospitals), we can draw the following the conclusions:

- Although a less stable population than general residents, the homeless tend to stay in the area—they do not leave. (Several respondents reported this.) One respondent perceived a “magnet” effect for the local veteran’s hospital.
- A few respondents reported migration into their counties from rural areas because of services. Two respondents said that some homeless heard there were jobs available and were stuck when they discovered a lack of available jobs. One respondent noted migration from Oregon due to service cuts in that state.
- In piecing together the reports of respondents, it was noted that when the homeless leave an urban area, they drift to another urban area. One respondent said that the homeless will drift to another urban area if they hear of new services being offered. Another respondent said that when the weather is warm, the homeless will move to beach communities. A third reported migration to rural areas.

The responses to the key informant survey from rural counties did not lead to any easily discernable patterns. General impressions follow:

- Respondents reported a variety of reasons for why the homeless move into rural communities, including the beauty of rural areas, the quality of life, and because large cities are overwhelmed with people needing services.
- When the homeless leave a rural area, they tend to move to the state’s cities. Cities mentioned were Spokane, Yakima, and Olympia (but not Seattle). One respondent mentioned Portland.

Unfortunately, these qualitative results do not offer evidence for or against the concept of drift, and in no way give estimates as to the incidence or impact of drift on regional prevalence rates of SMI.

Conclusions

Although acknowledged as a significant issue, PAC agreed not to adjust estimates based on drift considerations. The resources of the current study precluded a full investigation, and the group agreed that conservative, defensible estimates of the impact of drift on communities could not be calculated based on available literature or other data sources.

Racial/Ethnic Minorities

Introduction and Background

Major mental disorders such as schizophrenia, bipolar disorder, depression, and panic disorder are found worldwide, across all racial and ethnic groups. They have been found across the globe, wherever researchers have surveyed. In the U.S., the overall annual prevalence of mental disorders is about 21 percent of adults and children (DHHS, 1999). Most research finds that the prevalence of mental disorders for racial and ethnic minorities in the U.S. is similar to that for whites (Mental Health: Culture, Race, and Ethnicity. A Supplement to “Mental Health: A Report of the Surgeon General,” 2001).

This general finding about similarities in overall prevalence applies to minorities living in the community. However, it does not apply to those individuals in vulnerable, high-need subgroups such as the homeless, incarcerated, and institutionalized. People in these groups have higher rates of mental disorders (Koegel et al., 1988; Vernez et al., 1988; Breakey et al., 1989; Teplin, 1990). Some racial and ethnic minorities are over-represented in these groups. Ethnic and racial minorities in the U.S. face a social and economic environment of inequality that includes greater exposure to racism, discrimination, violence, and poverty. Living in poverty has the most measurable effect on the rates of mental illness. People in the lowest strata of income, education, and occupation (known as socioeconomic status) are about two to three times more likely than those in the highest strata to have a mental disorder (Mental Health: Culture, Race, and Ethnicity. A Supplement to “Mental Health: A Report of the Surgeon General,” 2001).

However, the studies that have been done to date regarding the prevalence of mental illness in racial or ethnic minority groups have often used small sub-samples, such as incarcerated African American youth, or at-risk Vietnamese youth. The existing literature on overall rates of mental illness in ethnic minority populations is incomplete, inconclusive, and at times conflicting, regarding prevalence rates within each ethnic minority group. Prevalence of mental illness in African American studies show

conflicting results. Hispanic Americans have overall rates of mental illness similar to those for whites; however, Hispanic American youth are at significantly higher risk for poor mental health than white youth by virtue of higher rates of depressive and anxiety symptoms, as well as higher rates of suicidal ideation and suicide attempts (Mental Health: Culture, Race, and Ethnicity. A Supplement to "Mental Health: A Report of the Surgeon General," 2001). Further, the rates of mental disorders are not sufficiently studied in many smaller racial and ethnic groups--most notably American Indians, Alaska Natives, Asian Americans, and Pacific Islander groups--to permit firm conclusions about overall prevalence within those populations. The conclusion of the Surgeon General's report was that the available research, while limited, suggests that the overall prevalence of mental health problems and disorders among ethnic minorities does not significantly differ from prevalence rates for other Americans (Mental Health: Culture, Race, and Ethnicity. A Supplement to "Mental Health: A Report of the Surgeon General," 2001).

The original PEMINS study over-sampled ethnic and racial minorities in order to ensure representative samples for these smaller population subgroups. In contrast to other published studies, the PEMINS study found differential rates of prevalence among different ethnic/racial groups. These differences were incorporated into the original PEMINS estimates.

Because of the disparity between other published reports and the PEMINS study rates of SMI, the workgroup initially included racial and ethnic minorities as a population to be revisited during this project. Several issues were raised with regard to the methodology used in the PEMINS study that may have influenced the findings of that study:

- There may have been ethnic groups underrepresented in PEMINS due to language barriers. Although, PEMINS did not offer translated survey items, it did provide an interpreter to those who spoke languages other than English (interpreter services were available in Spanish, Japanese, Korean, Mon-khmer, Vietnamese, Cantonese, and Mandarin Chinese). While surveys in the most prevalent languages in the state were available, they were not available for some less-widely used languages.
- The use of telephones to survey individuals may have affected the results for ethnic/racial minorities. Even for those individuals who were fluent in English, cultural effects may have influenced responses, such as a reluctance to divulge mental health issues over the telephone, reluctance to answer the telephone, and reluctance to even have a telephone. It was noted that Kessler found high rates of mental illness in those without telephones.
- Cultural differences in the descriptions and epistemology used to describe symptoms of mental illness may have also influenced the PEMINS results. This is a problem for most cross-cultural studies of mental illness. Cultures have different ways of understanding and describing the constellation of behaviors that Western cultures define as symptoms of mental illness.

PAC originally agreed that although the original PEMINS study was criticized for its differential calculation of the prevalence of mental illness in ethnic minority populations, it was still the best survey available, and it had gone beyond other larger prevalence studies (Epidemiological Catchment Area and National Co-Morbidity Study) in terms of over-sampling ethnic minorities. The group then decided to focus on a sub-population that was likely missed in the original survey, refugees and immigrants. These groups are discussed in the following section.

As the discussion around recent immigrants and refugees developed, the Ethnic Minority Advisory Committee (EMAC), a subcommittee of the Mental Health Planning and Advisory Council, became concerned that the larger issue of racial and ethnic disparities within the mental health system was being overlooked, and that the prevalence estimates provided by the PEMINS study were incorrect and misleading. EMAC favored broadening our efforts beyond immigrant and refugee populations to ensure that PEMINS methodological problems were adequately addressed. EMAC also requested representation on PAC. Project staff and staff from the MHD met with EMAC to provide an in-depth orientation to the project. At that meeting, a representative was designated, and activities were planned to facilitate EMAC's input into the prevalence study process. In clarifying the issues with which PAC had been struggling, EMAC offered to assist with the prevalence study. EMAC offered to identify existing studies of the prevalence of mental illness among different racial/ethnic groups, to assist with literature reviews, and to identify experts among certain racial/ethnic groups and subgroups. EMAC agreed to provide input on the relationships between language, culture, and access to services, and to assist with a field study exploring prevalence in ethnic minority communities across Washington State. Due to the constrained budget and timeline of this project, a field study was not possible. However, because of the literature and input provided by EMAC, PAC revisited its original decision to forego further review of the prevalence estimates of different racial and ethnic groups.

Summary of Literature Reviewed

The majority of the existing literature addressed rates of mental health utilization in minority groups, not the actual prevalence of mental illness in these groups. True prevalence studies of racial and ethnic subgroups are rare. The studies reviewed indicated a variety of results, with variability in rates of mental illness across groups and diagnoses. No clear trends were evident. A detailed literature review is included in Appendix I. The best summary of this literature was published by the Surgeon General: "Mental Health: Culture, Race, and Ethnicity. A Supplement to 'Mental Health: A Report of the Surgeon General,'" 2001. The results are summarized below.

African Americans

For adults, results of the Epidemiological Catchment Area (ECA) study revealed that African-Americans had higher rates of mental illness than whites, but this difference was explained by differences in other demographic variables. Results of the National Co-Morbidity Study (NCS) indicated that, without controlling for other demographic

variables, African-Americans had lower rates of mental illness than whites. *Conclusion:* Although debatable, rates of mental illness in this group are equivalent to whites.

For children, all but one study reviewed found that African-American children are at a higher risk of SED.

American Indians & Alaska Natives

For adults, the report states, “Unfortunately, no large-scale studies of the rates of mental disorders among American Indian and Alaska Native adults have yet been published” (p. 84). However, studies of Vietnam veterans found that American Indians had significantly higher rates of Post-Traumatic Stress Disorder (PTSD) and substance abuse than whites or other groups.

For children, the Great Smoky Mountain study found that American Indian youth had the same prevalence of SED as white children, with significantly less risk of tics and greater risk of alcohol abuse. A study of 109 Northern Plain’s American Indian youth found that they were at greater risk of ADHD, substance abuse, and conduct disorder relative to whites. No other group differences were observed.

Asian Americans and Pacific Islanders

For adults, the report states, “Less is known about the rates of psychiatric disorders using DSM categories for Asian Americans/Pacific Islanders (AA/PI) than most of the major ethnic groups” (p. 113). The Chinese American Psychiatric Epidemiological Study (CAPES) found lower rates of depression, and nearly equal rates of dysthymia in Asian Americans, relative to whites. Refugees from Southeast Asian countries are at risk for PTSD as a result of the trauma and terror preceding their immigration.

For children, the report indicates that while no large studies have been conducted, those published have found no group differences.

Hispanic Americans

For adults, the ECA study found no differences compared with non-Hispanics. Among Mexican Americans, those born in the U.S. had higher rates of depression and phobias than those born outside of the U.S. who immigrated to this country. The NCS found that Mexican Americans had fewer psychological disorders than non-Hispanics. Other Hispanic American groups had rates of mental illness similar to non-Hispanics, but the sample sizes of these groups were very small. *Conclusion:* Overall, it appears that Mexican American immigrants have levels of mental illness similar to non-Hispanics and native Mexicans, but that Mexican Americans born in the United States have higher rates of mental illness when compared to these groups.

For children, Hispanic American youth experience significantly more mental health problems than non-Hispanics.

Other general conclusions from the literature include:

- An observation that within a given service area, there may be an inverse relationship between service utilization and proportion of ethnic minority persons. In other words, in areas that have greater concentrations of an ethnic minority group, mental health service utilization is lower (Mental Health: Culture, Race, and Ethnicity. A Supplement to “Mental Health: A Report of the Surgeon General,” 2001). However, the mechanism and relationship of this finding to prevalence has not been well established or studied.
- There is some research suggesting an association between the experiencing of racial harassment or perceived discrimination and increased prevalence of mental illness.

Methodological Issues

The EMAC requested that PAC look at the frequency of different diagnoses by racial/ethnic subgroups in the current service population as a way to compare the served population with the mental illness estimates derived in the PEMINS study. Such an effort does not directly address the issue of overall prevalence of mental illness. Minority populations may not avail themselves of services for a variety of reasons. It is an axiom of health services research that looking only at service utilization likely underestimates the actual prevalence of mental illness and need for services in communities. Utilization reflects only those seeking and obtaining services. However, if the prevalence estimates were significantly lower than the service utilization numbers then an argument could be made that the PEMINS study underestimated the prevalence of mental illness in those populations.

In addition, EMAC argued that non-white groups might not have responded as candidly on the survey regarding symptoms of mental illness. Consequently, PAC reviewed the original response rates and rates of cooperation for ethnic minority respondents to the PEMINS survey.

In addition, concerns were raised about the translations of the survey questions, and the cultural diversity in understanding and describing symptoms of mental illness. The PEMINS survey was conducted in seven languages, and every attempt was made to hire culturally competent interviewers. However, it is probable that symptoms of mental illness may have been under reported in some ethnic minority groups.

All the issues raised by EMAC culminated in the expressed concern that by incorporating the ethnic minority phone survey results into the prevalence estimates, there was potential for a serious underreporting of the prevalence of mental illness in some ethnic minority groups, particularly Asian populations.

Results

The literature review did not show data supporting major differences in prevalence of mental illness among different racial or ethnic groups. The differences reported in the original PEMINS study were problematic to EMAC and several PAC members because they were not supported by the literature review.

Regarding the concern raised by EMAC about the potential underreporting of mental illness among Asians in the PEMINS study, Table 9.1 shows the original PEMINS estimates by racial/ethnic category compared to the number of individuals receiving services in 2002. While a direct relationship is not to be expected, the disparities observed between the PEMINS rates and the service utilization rates for Asian populations, particularly for serious mental disorders, was questioned. It was suggested that the results support the contention that the prevalence of mental illness in Asian populations may have been undercounted in the PEMINS study.

**Table 9.1
Comparison of PEMINS and Mental Health Division (2002) Diagnosis Categories**

Comparison of PEMINS and Mental Health Division (2002) Diagnosis Categories										
How Diagnosis Categories Were Matched and Combined										
PEMINS Diagnosis Category	MHD Diagnosis Category				Category for This Analysis					
Any WANAHS Disorder	Anxiety				Any Disorder					
	Bipolar									
	Major Depression									
	Other MH Diagnosis									
	Other Psychotic Disorders									
Major Depressive Episode	Major Depression				Major Depression					
Panic Attacks	Anxiety				Anxiety					
Anxiety Disorder										
Psychosis	Schizophrenia				Psychosis					
	Other Psychotic Disorders									
Manic Episode	Bipolar				Manic Episode					
Rates in Percent										
Diagnosis	White		Black		Asian		Native		Hispanic	
	PEMINS	Served	PEMINS	Served	PEMINS	Served	PEMINS	Served	PEMINS	Served
Major										
Depression	8.0	32.5	7.9	32.8	4.3	34.2	12.3	37.2	7.3	39.6
Manic Episode	0.5	21.1	1.3	16.1	0.0	10.8	1.0	16.0	0.2	11.6
Anxiety	8.1	18.3	7.7	13.9	2.9	14.8	13.8	28.5	5.9	31.3
Psychosis	0.9	28.1	0.3	37.3	0.0	40.1	0.8	18.4	0.2	17.6
Any Disorder	12.3	100.0	11.5	100.0	5.9	100.0	19.6	100.0	9.9	100.0

Reviewing the PEMINS response and cooperation rates of ethnic minority respondents showed high rates for most of the ethnic minority group respondents. The lowest response and cooperation rates were found for whites. These results suggest that the survey itself did not result in culturally or racially biased response and completion rates.

**Table 9.2
Response and Cooperation Rates of Ethnic Minority Group Respondents**

Statistic	All	White	African American	Asian	Native American	Hispanic
Completed Interviews	7,267	1,966	1,183	1,261	1,154	1,703
Response rate	72%	65%	72%	68%	72%	77%
Cooperation rate	88%	81%	86%	86%	89%	93%

However, some members of the committee argued that higher response rates for ethnic minority populations likely reflect a norm of politeness and respect in some cultures, and that completion of the survey did not necessarily indicate truthful or accurate responses. It was argued that this might be especially true for those survey items that ask about difficult or shameful subjects (such as mental illness is in many cultures).

Conversely, the argument was made that the PEMINS study was a more in depth, local study than either the ECA or the NCS, and as a result, the study may have captured differential rates that were not visible in the larger studies. The over-sampling of racial minorities in PEMINS to increase their representation in the sample may have actually given a clearer picture of the prevalence of mental illness in different ethnic groups. The argument was made that the PEMINS study was well conducted, completed by leading researchers in this area, and the results should stand. The approach of science is to view information objectively, not modify it based on subjective responses and political pressure.

To resolve these differences of opinion, PAC agreed to a compromise. They requested that prevalence estimates be calculated in two ways. One, based on the existing PEMINS calculations, was to create the estimates using the same methodology and coefficients from the original survey, including race/ethnicity. The alternate calculation removes race/ethnicity as a predictor from the original equations, yielding race-neutral estimates. This practice, in effect, applies one prevalence rate to all ethnic groups. As seen in Chapter 2, both rates were calculated and are presented in this report.

Recent Immigrants and Refugees

Summary of Issues and Background

Some literature suggests that recent immigrant and refugee status may be associated with higher rates of SMI and SED relative to the general population (Allden et al., 1996; Kinzie et al., 1990; Mghir, et al., 1995; Protes et al., 1992). In addition to being over-represented in lower socioeconomic strata, all immigrants face issues of loss, relocation, and language and cultural barriers (Berry et al., 1987). In turn, these factors potentially increase the risk for mental illness. Since refugees may have experienced higher incidence of trauma, it is not surprising that some studies have identified high rates of PTSD and depressive disorders in refugees (Allden et al., 1996; Kinzie et al., 1990; Mollica et al., 1999; Holtz, 1998; Kozaric & Kozaric, 1993). In addition, depression in immigrants has been associated with the number of pre-migration traumatic events (e.g., years in refugee camps, post-migration employment, income, and English proficiency).

In reviewing the PEMINS study, PAC was concerned that recent immigrants and refugees may have been under-represented, and/or survey participants may have underreported symptoms of mental illness. The factors that could have led to this under-representation include limited English proficiency, lack of telephones, and distrust of outsiders and governmental agencies.

As noted previously, cultural differences in the descriptions and epistemology used to describe symptoms of mental illness may have also influenced the PEMINS results and contributed to an underestimation. This is a problem for most cross-cultural studies of mental illness. Cultures have different ways of understanding and describing the constellation of behaviors that Western cultures define as symptoms of mental illness (Mental Health: Culture, Race, and Ethnicity. A Supplement to "Mental Health: A Report of the Surgeon General," 2001). For these reasons, PAC decided to address this issue in the current project.

Summary of Literature Reviewed

An extensive literature review was conducted. The major findings are summarized below with a fully detailed matrix available in Appendix J.

Several caveats are important to consider when reviewing the available literature on the prevalence of mental illness in recent immigrants and refugees. Most studies focus only on rates of depressive disorders or PTSD and do not attempt to measure the more severe and persistent illnesses such as schizophrenia, schizoaffective disorder, or

bipolar disorder. Of the three studies that did investigate rates of schizophrenia, all but one (Protes, et al., 1992) were significantly outdated and lacked methodological quality (Krupinski et al., 1993; Williams & Westermayer, 1993). Most studies were conducted with refugees outside of the U.S., North American, or Western European countries, and many were conducted in refugee camps. Ethnic groups reviewed included Asians, Eastern-Europeans, Afghans, and Caribbean refugees. In many of the studies, measures were developed with no attention to cross-cultural differences (Jaranson et al., 2000).

While many studies and reports have documented the unique situations faced by refugees and recent immigrants that may increase their risk of mental illness, the literature did not suggest that immigration *per se* results in higher rates of mental disorders (e.g., Vega et al., 1998). Several studies found differences based on how long individuals have been in the United States (Ying, 1998; Hurn & Kim, 1988; Rumbaut, 1985, 1989). Counterintuitively, those individuals who have been in this country for more than five years are at greater risk of mental illness than those who have been in this country for fewer than five years. Other studies indicated that pre-migration issues and traumatic events were significant predictors of subsequent depression even after five years post-migration. Recent immigrant (<five years) depression was predicted by the number of pre-migration traumatic events and public assistance. Earlier immigrant (>five years) depression was associated with the number of pre-migration traumatic events, years in refugee camps, and post-migration employment, income, and English proficiency (Vega, et al., 1998).

However, studies have identified relatively higher rates PTSD and depressive disorders in refugees than in the general population. Estimates of PTSD in refugee populations range from 4% to 23% in community samples of refugees (Alden, et al., 1996; Jaranson, Martin, & Ekblad, 2000) and 26% to 70% in clinic and refugee camp samples (Kinzie, et al., 1990; Mollica et al., 1993, 1999). Depressive disorders are estimated to be 38% in the community (Alden et al., 1996) and 39% to 55% in refugee camp samples (Mollica et al., 1993, 1999). Rates of depressive disorders and PTSD do not appear to vary significantly across refugee ethnic groups.

A consistently reported finding was that prevalence estimates of PTSD and depressive disorders among refugee populations are higher in clinic and refugee camps (Kinzie et al., 1990; Mollica et al., 1993, 1999) than in community samples (Alden, et al., 1996). Although estimates of PTSD in refugee camps are important to document and understand, they likely overestimate the need for mental health services in United States refugee populations living in the community.

Methodology

Several issues were discussed regarding the definition of this sub-population, including recency of immigration, English language proficiency, culturally- influenced patterns of responding to surveys, telephone use, and mistrust of authorities. Other issues discussed include:

- Several studies found differences based on how long individuals have been in the U.S. Unfortunately, we did not have information that would permit a calculation of the post-migration period for respondents in the original PEMINS study.
- Interpreter services were offered to survey respondents in the PEMINS study. PEMINS did not offer translated versions but rather provided an interpreter to those who spoke languages other than English. Preferred language was determined at the beginning of the interview and an offer was made to provide an interpreter as needed. Interviews were conducted in seven different languages, including English, Spanish, Japanese, Korean, Mon-Khmer, Vietnamese, and Chinese (in both Cantonese and Mandarin dialects). Despite the attempt to deal with language issues through an interpreter, the PEMINS results may have been influenced by cultural barriers that resulted in the under-reporting of symptoms of mental illness.
- The use of telephones to survey individuals may have affected the results for recent immigrants and refugees. Even for those individuals who were fluent in English, cultural effects may have influenced responses, such as a reluctance to divulge mental health issues over the telephone, reluctance to answer the telephone, and reluctance to even have a telephone.
- Immigrants and refugees from many regions of the world, including Central and South America and Southeast Asia, feel extreme mistrust of government, based on atrocities committed in their country of origin and on fear of deportation by U.S. authorities. They may have been reluctant to answer questions regarding mental illness being asked on behalf of DSHS.

Denominator

In order to count the number of individuals in a specific subgroup, the study needed to use existing data from an official source. In discussions with the Expert Panel, it was stated that immigrant status could be captured by the 2000 U.S. Census. The panel recommended that project staff obtain and analyze the census data specifically related to immigrant status and estimate the size of immigrant populations when the data tape became available in December 2002. Once these data became available, project staff examined the results. The census data did not include “immigrant status” *per se*, but contained a number of variables which could be used as a proxy for immigrant status. These included:

- A count of foreign-born individuals who entered the United States from 1995 to March 2000. This count does not take into account the ability to speak English.
- A count of linguistically isolated households. This category enumerates households, not individuals.
- A count of people who speak English “not well” or “not at all.” This category does not consider recency of immigration, but could capture those who might not respond to a telephone survey for reasons of limited English proficiency.
- A count of people who speak a language other than English at home. This category does not take into account that these individuals may also speak English fluently.

The EMAC convened a telephone conference to discuss these potential denominator sources. That group concluded that these possible definitions were inadequate. EMAC offered to look at already existing definitions, such as those used by the Immigration and Naturalization Service. A PAC suggestion was to contact personnel in DSHS who are involved in limited English proficiency projects, or personnel in DSHS’s Office of Refugee & Immigration Assistance to determine what data DSHS might have about recent immigrants. A final decision was tabled until the definitional work around the numerator was completed.

Numerator

In conjunction with work being done to define and calculate the denominator, work was conducted to determine the best prevalence estimate of SMI/SED for recent immigrants and refugees.

The Expert Panel recommended that the current study re-analyze the original PEMINS data to compare prevalence rates for those who responded in English versus those who responded in other languages. This could give a proxy for limited-English proficiency and recent immigrant status.

The Expert Panel expressed reservations about the ability to capture PTSD in the current PEMINS rates. Drs. Kohlenberg and Holzer, researchers on the previous PEMINS study, reported that they had asked survey questions related to Generalized Anxiety Disorder because in their opinion this was a better measure for assessing these issues. Using questions related to Generalized Anxiety Disorder casts a broader net and is more likely to capture persons with a mental illness, especially in non-native English speakers.

EMAC again offered its help on the numerator issue by conducting literature reviews to develop the best data-based estimate available. The review was largely focused on prevalence of mental disorders in refugee populations. Discussions highlighted the difficulty of developing an overall, composite rate of mental illness across a population which is varied and which came to this country for a variety of reasons and at various times. As previously noted, the rates of mental illness among recent immigrants are

comparable to the general population. The exception to this is refugees who were tortured; those individuals are at an increased risk of depression and PTSD, not SMI.

Results

PAC concluded that there was a lack of correspondence between the numerator and the denominator. The numerator is intended to reflect rates of mental illness among *refugees and recent immigrants*. However, the estimates available listed only rates of depression and PTSD. The denominator was to be based on an unsatisfactory proxy of *foreign-born status or English proficiency*. Consequently, the consensus of PAC was that our numerator and denominator “didn’t match.” This was the one subgroup where we were unable to create estimates based on existing data and published estimates. This left the following options:

- Not consider the issue in our report.
- Apply an overall general rate to an available census category group.
- Not consider the refugee or recent immigrant group as a separate category.

The consensus of PAC was to adopt the last option. The lack of existing data for a denominator combined with the lack of clear published estimates of SMI/SED for refugees led the committee to conclude that it would not be possible to develop estimates for the immigrant/refugee group at this time. A future recommendation would be to address these issues in a prevalence study focusing on recent immigrants and refugees in Washington State.

Integration and Summary

Integration

This final chapter answers the charge of this study's enabling legislation. Specifically, the study was mandated to "examine how reasonable estimates of the prevalence of mental illness relate to the incidence of persons enrolled in medical assistance programs in each regional support network area." Guided by PAC at each step, this study first developed reasonable estimates, as detailed in Chapters 1 through 9 of this report. This last chapter integrates the results of all studies, compares results to other prevalence studies to determine reasonableness of estimates, and examines how these estimates relate to Medicaid eligibility. It is anticipated that the results reported here can be used to plan and administer publicly funded mental health services in the future.

This chapter is written in three sections. The first section integrates the results for all studies. A second section of this chapter compares the findings of this study with others, assesses the reasonableness of estimates, and draws conclusions about the validity of the overall findings. The last section of this chapter examines the status and utility of the current effort, makes suggestions for conducting future prevalence studies, and offers some concluding remarks about the prevalence of SMI and SED in Washington State and its relationship to Medicaid eligibility.

Integration of Results from All Studies and Final Estimates

Table 10.1 presents the addition of all prevalence estimates into summary general population estimates for each RSN. This table uses the general population, race-neutral models described in Chapter 2. In looking at these estimates, it is important to keep in mind that these estimates are for **all** persons in the state, not just those in any given living status, economic status, or other specific demographic category.

The last column of this table reflects our best estimate of the number of SMI adults and SED children (combined) in each RSN within the state and for the state as a whole. Because no effort is made to distinguish those at or below poverty level, these numbers should not be interpreted as the counts of persons dependent upon publicly funded mental health services. These estimates include persons who are employed, have insurance, and/or have the resources to purchase needed care, as well as those who may be dependent upon Medicaid, state, and local resources for mental health care.

Table 10.1
Seriously Mentally Ill in the General Population

RSN	PEMINS Estimated Number of MI (medium band) ¹	Plus Prevalence Study Estimated Number of MI						Total Estimated Number of SMI/SED
		Community Residential ²	Jails and Prisons ³	Homeless ⁴	Incarcerated Children ⁵	State Hospitals ⁶	Children ⁷	
Chelan-Douglas	2,588	194	73	98	22	26	1,977	4,978
Clark County	9,487	363	218	375	39	78	6,929	17,489
Grays Harbor	1,924	112	53	66	15	33	1,208	3,411
Greater Columbia	15,348	837	447	599	83	146	12,084	29,544
King County	52,941	3,254	1,025	2,793	144	642	27,345	88,144
North Central	3,357	251	94	129	25	40	2,835	6,731
North Sound	25,730	1,425	469	949	119	259	17,808	46,759
Northeast	1,872	97	34	68	7	21	1,337	3,436
Peninsula	8,870	382	171	350	34	113	5,696	15,616
Pierce County	19,442	1,537	548	944	109	335	13,340	36,255
Southwest	2,598	104	114	92	20	44	1,743	4,715
Spokane County	11,936	1,047	220	1,295	26	239	7,525	22,288
Thurston-Mason	7,180	253	211	253	62	69	4,490	12,518
Timberlands	2,420	170	107	92	25	27	1,652	4,493
Other/Unknown	0	0	43	0	0	4	0	47
Total	165,154	10,025	3,826	8,104	730	2,076	105,969	295,884

¹ PEMINS 2000 estimate of the number of household members who meet criteria for SMI (Medium Need- Race Neutral Method). With the indirect estimation method employed in the PEMINS studies, the model is applied to each RSN and to the state totals separately. This results in small differences between the statewide PEMINS totals and the sum of the values for each of the 14 RSNs. See Chapter 2 for description of how estimates were derived.

²See Chapter 8 for description of how estimates were derived.

³Based on Jail Average Daily Population data provided by the Washington Association of Sheriffs and Police Chiefs for calendar year 2001 and prison data provided by the State of Washington Department of Corrections Planning and Research Section for June 30, 2002; applies rate of 12% to jail population and 15% to prison population (see Chapter 5).

⁴Uses estimate of 35% applied to estimated number of homeless in each RSN (see Chapter 4).

⁵Uses estimate of 60% applied to data provided by the State of Washington Juvenile Rehabilitation Administration for calendar year 2001. Does not include youth in community facilities or tribally adjudicated youth (see Chapter 6).

⁶Applies estimate of 100% prevalence for all persons in beds on May 29, 2002. See Chapter 7 for description of how estimates were derived.

⁷Source: Census 2000, SF-1data file, 100% data; applying a prevalence rate of 7%. See Chapter 3 for description of how estimates were derived.

Examination of this table shows that the methods adopted by PAC results in a total estimate of **295,884 seriously mentally ill persons in Washington State**. This estimate includes all those in households, institutions, hospitals, residential facilities in communities, the homeless, and children. The estimates range from a high of 88,144 in King County to just over three thousand in the smallest RSNs (Grays Harbor and Northeast). These counts will be compared to other estimates and to relative population sizes below to facilitate interpretation of these data. The purpose of this table is to show the absolute number of SMI in the state using the methods adopted through consensus by PAC, and to show how these 295,884 persons are distributed throughout the 14 RSNs.

Serious Mental Illness in Those at or Below Poverty Level

The next table (Table 10.2) presents the data in the same format, but reports estimates for individuals in households at or below 200% of poverty for adults and 250% of poverty for children. The original decision of PAC was to focus on this count as a conservative, defensible estimate of the number of persons dependent upon the public mental health system for care. The same results from the target group studies are added to this "base" to derive an estimate of the number of individuals with SMI who are likely to be dependent upon the public mental health system for care. Although no effort was made in the target group studies to distinguish between those above and below 200% of poverty, for most categories it is presumed that membership in the category is itself highly correlated with being at or below 200% of poverty. With very few exceptions, persons in public hospitals, in jails, in nursing homes and similar facilities, and the homeless would be expected to meet criteria for having family incomes at or below 200% of the Federal Poverty Level.

As reported in Chapter 3, the literature shows that prevalence rates of SED in children increase as a function of poverty status and resources available to families. However, PAC originally adopted different rates for selected age groupings, without regard for poverty status or household income. Based on different prevalence rates based on age, the group endorsed a methodology that yielded an estimate of 74,798 children with SED statewide. In the original draft of Table 10.2 the overall children's estimate of 74,798 was included for the 200% of Federal Poverty Level (FPL) as well. Subsequent feedback from some PAC members suggested we apply the selected rates only to children in households at or below 200% of poverty. These corrections were applied resulting in the revised estimate of 25,976 children at or below 200% of poverty who have SED.

Subsequent review by PAC of these estimates at its last meeting on November 7, 2003 led to a strong reaction by PAC members that these estimates were too low. Concerns were raised that the number identified statewide was smaller than the number actually served and that clinicians' and administrators' experience was that need was greater than available service capacity. Following discussion, the group endorsed abandoning its original methodology, which emphasized different prevalence rates based on age, in

favor of a methodology that applied flat SED prevalence estimates of 7% for children generally and 9% for children at or below 250% of poverty.

The group's decision to raise the FPL threshold and the decision to assume flat 7% and 9% SED prevalence estimates for all children and children at or below 250% FPL, respectively, resulted in an increase in the number of children with SED from 74,798 to 105,969 (a 42% increase). The estimate for those at or below the selected poverty threshold increased from 25,976 to 63,899--a 146% increase. Thus, the children's estimates have been substantially increased as a result of PAC decisions made on November 7, 2003. These higher estimates are presented in Tables 10.1 and 10.2.

PAC adopted this methodology change to increase estimates at its last meeting. These estimates have not been subjected to subsequent scrutiny and evaluation. The group adopted this methodology on the basis of assumptions that Medicaid eligibility criteria had been raised to 250% of FPL. While true regarding SCHIP participation, the 200% FPL threshold had not been changed for Medicaid eligibility. Thus the data in Tables 10.1 and 10.2 reflect the decisions made at study end, and have not undergone careful review.

Project staff subsequently examined the population and income data by applying the prevalence rate of 9% to the threshold of 200% of FPL. That exercise yielded an overall estimate of 49,730 children with SED at or below 200% FPL statewide. A case could be made that this approach yields a more conservative estimate that is consistent with overall study objectives and Medicaid eligibility criteria. Similar changes are observed for the individual RSNs, but not evenly, as regions differ in terms of household income and percent of population under the age of 18.

Table 10.2
Seriously Mentally Ill at or Below 200% of Poverty; Children at or Below 250% of Poverty

RSN	PEMINS Estimated Number of SMI =<200% Poverty ¹	Estimates of SMI/SED in Target Groups						Total Estimated Number of SMI/SED Dependent upon Public MH funds
		Community Residential ²	Jails and Prisons ³	Homeless ⁴	Incarcerated Children ⁵	State Hospitals ⁶	Children ⁷	
Chelan-Douglas	1,297	194	73	98	22	26	1,192	2,902
Clark County	3,362	363	218	375	39	78	4,178	8,613
Grays Harbor	899	112	53	66	15	33	728	1,906
Greater Columbia	7,546	837	447	599	83	146	7,287	16,945
King County	15,130	3,254	1,025	2,793	144	642	16,489	39,477
North Central	1,910	251	94	129	25	40	1,709	4,158
North Sound	8,417	1,425	469	949	119	259	10,738	22,376
Northeast	926	97	34	68	7	21	806	1,959
Peninsula	3,450	382	171	350	34	113	3,435	7,935
Pierce County	7,111	1,537	548	944	109	335	8,044	18,628
Southwest	1,094	104	114	92	20	44	1,051	2,519
Spokane County	5,060	1,047	220	1,295	26	239	4,538	12,425
Thurston-Mason	2,706	253	211	253	62	69	2,708	6,262
Timberlands	1,068	170	107	92	25	27	996	2,485
Other/Unknown	0	0	43	0	0	4	0	47
Total	60,072	10,025	3,826	8,104	730	2,076	63,899	148,732
¹ PEMINS 2000 estimate of the number of household members at or below 200% of poverty who meet criteria for SMI (Medium Need- Race Neutral Method). With the indirect estimation method employed in the PEMINS studies, the model is applied to each RSN and to the state totals separately. This results in small differences between the statewide PEMINS totals and the sum of the values for each of the 14 RSNs. See Chapter 2 for description of how estimates were derived.								
² See Chapter 8 for description of how estimates were derived.								
³ Based on Jail Average Daily Population data provided by the Washington Association of Sheriffs and Police Chiefs for calendar year 2001 and prison data provided by the State of Washington Department of Corrections Planning and Research Section for June 30, 2002; applies rate of 12% to jail population and 15% to prison population (see Chapter 5).								
⁴ Uses estimate of 35% applied to estimated number of homeless in each RSN (see Chapter 4).								
⁵ Uses estimate of 60% applied to data provided by the State of Washington Juvenile Rehabilitation Administration for calendar year 2001. Does not include youth in community facilities or tribally adjudicated youth (see Chapter 6).								
⁶ Applies estimate of 100% prevalence for all persons in beds on May 29, 2002. See Chapter 7 for description of how estimates were derived.								
⁷ Source: Census 2000, SF-1 data file, 100% data; applying a prevalence rate of 9% to children in households at or below 250% of poverty. See Chapter 3 for description of how estimates were derived.								

Examination of Table 10.2 shows that statewide there are 148,732 SMI/SED persons at or below the FPL thresholds adopted for this study. As in Table 10.1, the number in each RSN is detailed in this table. The estimates range from a low of 1,906 in Grays Harbor RSN to a high of 39,477 in King County RSN.

Comparisons Between Results of the Current Study and Other Studies of Prevalence

This section of the report examines the results of the current study more closely, and compares the results from the current study with other estimates of the prevalence of mental illness in Washington State.

The first four columns of Table 10.3 compare the estimates obtained in this study with those from *Blueprints for an Effective Mental Health System in Washington State*. The Washington Community Mental Health Council (WCMHC) released this comprehensive review of the public mental health system in September 2000. Access to this report is available on the web at <http://www.wcmhcnnet.org/ScriptContent/Index.cfm>.

This study addressed an array of issues, including prevalence, and represented the efforts of a broad spectrum of mental health professionals who endorsed the study. The following is excerpted from the Executive Summary of that document:

In the early spring of 2000, in part inspired by the ongoing Joint Legislative Audit Review Committee's (JLARC) mental health study, the Washington Community Mental Health Council and NAMI Washington (National Alliance for the Mentally Ill) began a joint process to review and distill national and state experience into a set of guiding principles and recommendations for an effective state mental health/mental illness treatment system. The Council and NAMI members worked proactively and collaboratively to incorporate the views and priorities of system consumers, their family members, and stakeholders at all levels. The product of this collaboration is contained within the document, *Blueprints for an Effective Mental Health System in Washington State*.

Included in the Blueprints report was a section entitled, "Washington State Public Mental Health Prevalence, Demand and Cost Analysis Summary" (see Chapter 5 of the Blueprints report). The authors provided a series of estimates of the prevalence of SMI in each of the RSNs and for the state as a whole; these are compared to the results of the current study in Table 10.3.

Columns two and three of Table 10.3 juxtapose the results of this study with those of the Blueprints report for the general population. Statewide, this study found **295,884** SMI/SED in the general population, compared to the **331,617** estimated by the Blueprints study. The third and fourth columns of Table 10.3 compare the number of SMI/SED that might be dependent upon public mental health services for care. Statewide the current study estimated **148,732** persons with SMI/SED likely to need public mental health services, compared to **133,406** for Blueprints. These four columns

permit comparisons between the two studies for each RSN as well as these statewide results.

The next method used for comparison is the NCS methodology developed by Kessler et al. (1994). The original NCS study was based on a nationwide sample of 8,098 persons ages 15 to 54 in the late 1980s and early 1990s. It used the Composite International Diagnostic Interview (CIDI), which was an adaptation of the earlier Diagnostic Interview Schedule for international use. The NCS used a methodology for assessing psychosis that included clinical reassessments. The same is true for the WANAHS survey, which is the basis for household estimates in this prevalence study (see Chapter 2). For comparison purposes, the WANAHS survey was administered to a Washington State sample of 7,001 persons aged 18 and above in 1993-1994. The results in the NCS column of Table 10.3 is the result of applying the NCS method to current (2000) U.S. Census data, as was done to derive this study's estimates. Application of this method yields an estimate of 223,588, but this is an estimate of adults only and thus it is not comparable to the previous columns, which include both adults and children.

The next column of Table 10.3 indicates the number of Medicaid Eligibles in each RSN of the state. JLARC has suggested that the number of Medicaid Eligibles might serve as a reasonable proxy indicator for SMI (JLARC, 2000; see Chapter 1). However, there are a number of issues with how one might calculate Medicaid Eligibles, as there are a number of categories, and within each category, a number of match codes that might qualify a person for some subset of services. The numbers in the Medicaid Eligibles column of Table 10.3 were those used by the fiscal office of MHD to allocate funding for the month of June 2002. The method used to calculate the number of Medicaid eligible persons by the MHD fiscal office is described in more detail in Appendix K.

The last column of Table 10.3 reports the U.S. Census data for Washington State. To create this column, county level counts from SF-1 of the U.S. Census were aggregated into RSN counts.

Table 10.3
Study Comparisons Based on Counts of Persons

RSN	All SMI (Households-Race Neutral) + Target Groups ¹	SMI Estimates from Blueprints	SMI <200/250% FPL +Target Groups ¹	# Needing Public MH Services (Blueprints)	NCS Estimates for WA ²	Number of Medicaid Eligibles ³	WA State Population
Chelan-Douglas	4,978	5,594	2,902	2,231	3,864	17,282	99,219
Clark County	17,489	18,856	8,613	7,550	13,292	50,556	345,238
Grays Harbor	3,411	4,198	1,906	1,726	2,904	13,885	67,194
Greater Columbia	29,544	36,506	16,945	14,705	23,598	123,341	599,730
King County	88,144	93,371	39,477	37,650	63,125	176,077	1,737,034
North Central	6,731	7,875	4,158	3,404	5,188	32,372	130,690
North Sound	46,759	52,040	22,376	20,873	36,018	115,091	961,452
Northeast	3,436	4,148	1,959	1,691	2,710	14,867	69,242
Peninsula	15,616	18,054	7,935	7,246	11,837	38,741	322,447
Pierce County	36,255	41,393	18,628	16,499	27,004	101,139	700,820
Southwest	4,715	5,546	2,519	2,215	3,853	17,599	92,948
Spokane County	22,288	24,445	12,425	9,759	16,516	73,500	417,939
Thurston-Mason	12,518	14,030	6,262	5,635	9,888	33,396	256,760
Timberlands	4,493	5,561	2,485	2,222	3,791	18,132	93,408
Other/Unknown	47	0	47	0	0	3,530	0
Total	295,884	331,617	148,732	133,406	223,588	829,508	5,894,121

¹Applies the appropriate PEMINS 2000 estimates for estimate of the number of Household members and Household Members at 200% of poverty who meet criteria for SMI (Medium Need-Race Neutral Formula).target group substudy totals are then added to these to derive total prevalence estimates.

²These data are were calculated by Dr. Holzer, applying NCS definitions and methods to population data.

³Includes "most" categories of Medicaid Eligibility; See Appendix K for description of program categories and match codes included.

Inspection of this table reveals some telling comparisons. First, it is worth noting that the number of people estimated to have SMI/SED varies across these methods. The current study found **295,884** persons with SMI/SED, compared to **331,617** using the Blueprints estimates and **223,588** using the NCS method. However, the NCS method does not include children. If the children's estimate of 105,969 is added to the NCS adult estimate, the revised NCS estimate is **329,557**. Closer examination shows that these differences are largely attributable to the different criteria for defining SED/SMI employed by these three studies.

Issues with Definitions of SMI/SED

The criteria used by this study were detailed in Chapter 2. The summary description of these criteria, simply stated, is:

Respondent had a major mental disorder and meets at least one of the following additional criteria:

- a. Functional limitation,
- b. MH services use or desire for MH services,
- c. Danger to self or others
- d. Dependence

The Blueprints estimate cited above used a less restrictive criterion based upon the Center for Mental Health Services definition that has been published in the Federal Register, among other places. That definition, excerpted directly from Chapter 5 of Blueprints, appears below.

In the Federal Register, **serious mental illness (SMI)** is defined as “the conjunction of a DSM mental disorder and a serious role impairment.” This definition arises from the Center for Mental Health Services (CMHS) definition and operationalization of the term. The following four criteria exist to define SMI:

A 12-month prevalence of schizophrenia, schizoaffective disorder, manic-depressive disorders autism, and severe forms of depression, panic disorder, and obsessive-compulsive disorder. Severe forms of major depression and panic disorder are indicated either by hospitalization or by the use of major psychotropic medications. This criterion includes people who would have been symptomatic in the absence of treatment. Any DSM disorder in the past 12 months accompanied by planned or attempted suicide within the past 12 months.

Any DSM disorder in the past 12 months accompanied by a vocational capacity substantially below expected level of functioning. One group of people in this category consists of people who are unemployed or working part time, living below the poverty level, and whose background and education are such that they would be expected to have at least twice their actual incomes. Another group in this category consists of people with a 12-month DSM diagnosis who consistently miss at least one full day of work per month as a direct result of problems with their mental health.

Any DSM diagnosis and complete isolation or only having relationships that are devoid of intimacy, the ability to confide, or the sense of being cared for or supported.

The U.S. Center for Mental Health Services (CMHS) defines **serious emotional disturbance** as:

Children from birth 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 the Diagnostic and Statistical Manual (DSM)-III-R and that resulted in functional impairment which substantially interferes with or limits the child’s role or functioning in family, school, or community activities. These disorders include any mental disorder (including those of a biological etiology) listed in DSM-III-R or the International Classification of Disease (ICD)-9-CM equivalent (and subsequent revisions) with the exception of DSM-III-R, V™ codes, substance abuse, and developmental disorders, which are excluded, unless they co-occur with another diagnosable serious emotional disturbance.

The Center for Mental Health Services defines **functional impairment** 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.

While the definition of SED in children differs little, the way individuals were estimated did. The Blueprints method used poverty criteria to determine which rates to apply, using federally suggested guidelines about the relationship between poverty and prevalence of SED. However, the estimates were calculated including all children ages 0 to 20. See Section 4.A. of Chapter 5 of Blueprints for a more detailed account of the procedures used. In this study, prevalence rates were applied to children who had not reached their 18th birthday. Considering that the Blueprints estimate included those aged 18 through 20, the higher estimate would be expected. See Chapter 3 of that report for a detailed accounting of the procedures used.

The third comparison to be considered is the Center for Mental Health Services-sponsored estimate of SMI as based on the NCS survey. This specific methodology is described in Chapter 5, "12-Month Prevalence and Correlates of SMI," in Mental Health 1996, SAMHSA, DHHS. This is essentially the same methodology used by Blueprints, but notably, prevalence estimates were only calculated for adults in the original NCS research. A new NCS survey study is in preparation that will include children.

A Comparison of this Study with Blueprints and NCS

The NCS estimate is only available for adults; therefore, the NCS estimates in Table 10.3 do not include children. Thus, they cannot be directly compared to the overall rates of either Blueprints or to those of this study. Subtracting children and children in correctional facilities from these latter two studies allows direct comparison of the three in terms of estimated number of adults who have SMI. Those data appear in Table 10.4 below:

**Table 10.4
Comparison of PEMINS 2000, Blueprints, and NCS Estimates of SMI and SED in Washington State**

Study	Adult SMI Estimate	Children's SED Estimate
Current Study Estimate	189,185	105,969 ¹
Blueprints Estimate	215,198	116,148
NCS Estimate	223,588	NA
<small>¹ This estimate does not include incarcerated children, therefore the adult SMI and Child SED estimates do not total to the overall estimate of 295,884</small>		

These data show that particularly for adults, the disparity in counts is not large. Because Blueprints and the NCS estimates are essentially the application of the same methodology, the small difference between the estimates (215,198 compared to 223,588) can be attributed at least in part to the fact that the NCS estimate is based on 2000 U.S. Census data, while Blueprints applied the CMHS methodology to 1998/1999 population estimates.

The fact that this study found an estimate 15% smaller than did the NCS method is most likely attributable to the fact that more restrictive diagnostic and functional disability criteria were used in the current study. These differences are summarized in the original PEMINS report (<http://psy.utmb.edu/estimation/mhdprev/html/project.htm>). It was reported there that while the PEMINS and Ecological Catchment Area estimates achieved some concordance, the NCS estimates of SMI were different from these other two methods. That report concluded that this finding warranted further study. While beyond the scope of this legislative report, the data from PEMINS 2000, which includes the addition of overlooked subgroups, still does not completely resolve the dilemma. However, the estimates from the current study are much closer to estimates from other studies than the earlier PEMINS work.

The Blueprints report cites the PEMINS 1998 study as finding 25,577 persons meeting criteria for the narrow definition of need, although 78,191 adults were actually served by RSNs in the state: "The PEMINS figure of 25,577 suggests that only 33% of those served required service. No other data has been found that would support such a gap. Because of the dramatic differences between actual adults served and the PEMINS prevalence estimate and the lack of corroboration with other studies, it is a concern that the PEMINS study may significantly understate the need for public mental health services in Washington State. Therefore, the PEMINS results have not been integrated into this prevalence study " [Blueprints, Chapter 5, pp. 79-80].

The PEMINS study actually offered three sets of estimates based on three increasingly inclusive definitions of SMI, as described in Chapter 2 of this report: narrow, medium, and broad. PEMINS generated estimates for each band of need. These estimates were constructed to permit selection of differing cuts or views of the need for mental health services, appropriate to the circumstances based on known definitions underlying the cuts being made. The Blueprints study used the NCS method, which equates most closely to the PEMINS broad need definition. Had the focus of this section of Blueprints been on the broad need category from PEMINS, substantial concordance would have been found between estimates.

Summary of Comparisons

The strategy used in the current study, with its emphasis on the medium band definition and the addition of groups not enumerated in the original PEMINS methodology, offers a middle-ground solution between overly restrictive criteria that underestimate those in need of mental health services and a broad criteria. It is hoped that the results of the

current study can contribute to a credible picture of the need for mental health services across the State of Washington.

Comparison of Children's Estimates

Comparison of the children's estimates shows a small difference: 105,969 for this study compared to the 116,148 estimated by the approach used in Blueprints. One factor accounting for the difference has to do with poverty. The current study used a threshold of 250% FPL compared to a 200% criterion in Blueprints. This difference in methods results in a near “wash” in the results of the two studies.

How do RSNs Fare in this Study

Having addressed the absolute values of the estimates obtained by this and similar studies of mental health prevalence in Washington State, we next explore the results for individual RSNs. This will permit assessment of the impact of the study on RSN prevalence estimates and show how the study methods might affect different geographic regions of the state. This is done several ways. Table 10.3 shows the absolute numbers of persons falling into each RSN by each estimate method.

To facilitate analysis of the impact of estimation method on the estimates of a given RSN, Table 10.5 shows the relative percentage each RSN contributes to the total estimated number of individuals with SMI/SED in the state for each of the study methods discussed in this chapter. This permits direct comparison between RSNs on a common metric (percentage points), and allows an assessment of the effect of alternative methods on any given RSN. These relative percentages are also directly compared with the percentage of Medicaid Eligible clients residing within each RSN. The last column provides a population "anchor" point, permitting comparison to some outside standard (in this case, each RSN's proportion of the total state population). This method was used earlier in Chapter 2 to permit assessment of different PEMINS models on household estimates across the RSNs.

The columns for this table are the same as those in Table 10.3, with the first and third columns containing the estimates from this study. The most important implication of these data is that, with few exceptions, there is stability in estimates across estimation methodologies. Furthermore, with very few exceptions, the distribution within any given estimate does not differ from the RSNs' proportions of the state population. Pierce County's values, for example, are 12.2%, 12.5%, 12.5%, 12.4%, and 12.1%, while the region contains 12.2% of the state's Medicaid Eligibles and accounts for 11.9% of the state population. This pattern of constancy across estimates for a given RSN is the rule rather than the exception for **most** RSNs.

Table 10.5
RSN Percent of SMI Estimated by Each Study¹

RSN	Estimated SMI (Households -Race Neutral) + MiniStudies	SMI Estimates from Blueprints	PEMINS SMI <200/250% FPL + MiniStudies	# Needing Public MH Services (Blueprints)	NCS Estimates for WA	Number of Medicaid Eligibles	WA State Population
Chelan-Douglas	1.7%	1.7%	2.0%	1.6%	1.7%	2.1%	1.7%
Clark County	5.9%	5.7%	5.8%	5.7%	5.9%	6.1%	5.9%
Grays Harbor	1.2%	1.3%	1.3%	1.3%	1.3%	1.7%	1.1%
Greater Columbia	10.0%	11.0%	11.4%	11.0%	10.6%	14.9%	10.2%
King County	29.7%	28.2%	26.6%	28.2%	28.2%	21.2%	29.5%
North Central	2.3%	2.4%	2.8%	2.6%	2.3%	3.9%	2.2%
North Sound	15.8%	15.7%	15.1%	15.6%	16.1%	13.9%	16.3%
Northeast	1.2%	1.3%	1.3%	1.3%	1.2%	1.8%	1.2%
Peninsula	5.3%	5.4%	5.3%	5.4%	5.3%	4.7%	5.5%
Pierce County	12.2%	12.5%	12.5%	12.4%	12.1%	12.2%	11.9%
Southwest	1.6%	1.7%	1.7%	1.7%	1.7%	2.1%	1.6%
Spokane County	7.5%	7.4%	8.4%	7.3%	7.4%	8.9%	7.1%
Thurston-Mason	4.2%	4.2%	4.2%		4.4%	4.0%	4.4%
Timberlands	1.5%	1.7%	1.7%		1.7%	2.2%	1.6%
Other/Unknown	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.0%
Total	295,884	331,617	148,732	4.2%	223,588	829,508	5,894,121

¹The percentages in this table use the sum of the estimates for all RSNs as the denominator.

The deviations from this interpretation come from looking at those individuals living at 200% of the poverty level and those individuals eligible for Medicaid. Here, Greater Columbia and North Central RSNs, and to a lesser extent Spokane RSN, have higher percentages compared to their general population proportions. King County, and North Sound RSN to a lesser extent, have smaller percentages. These data reiterate the discussion of this issue, first presented in Chapter 2. The inclusion of economic status influences the derived estimates disproportionately across RSNs.

Of note is that King and North Sound RSNs cover the two most densely populated regions in the state, and the case could be made that they are economically among the most prosperous. At least that would have been the case at the time data were collected for this study (2000 being the index year for household estimates). In terms of these proportions, King County is particularly affected by the use of Medicaid Eligibles, which is based in large part on living in a household at or below 200% of federal poverty threshold. Thus, use of Medicaid Eligibles as a proxy measure of SMI affects King County most significantly. For the urban areas on the west side of the state, indices related to poverty, particularly Medicaid eligibility, apportion lower

percentages relative to population size. The effect is pronounced in King County, notable in North Sound RSN, and suggested in Peninsula RSN data.

The percentages in Column 1 of Table 10.5 suggest that the current study provides a substantial correction to some of the issues that have been raised about the use of Medicaid Eligibles as a proxy for SMI, and about limitations of the original study. It seems reasonable to conclude, based on this analysis, that the current study successfully addressed some of the previously perceived flaws of earlier prevalence studies, and illuminates some of the issues related to using Medicaid Eligibility as a proxy measure.

It was said repeatedly in PAC deliberations that urban areas have a disproportionate share of the SMI, owing to the panoply of arguments that have been covered in the preceding chapters of this report. This includes drift towards institutions, urban cores, and service concentrations. Perhaps more prominent are the populations thought to be SMI but not Medicaid Eligible, including the homeless and those in hospitals, jails, and prisons. This study attempted to take these individuals into account, and comparison of the results of this study relative to Medicaid Eligibles bears this out.

At the other end of the spectrum, some comments about Spokane, Greater Columbia, and North Central RSN estimates are warranted. These RSNs could be viewed as gaining in a methodology based on Medicaid eligibility, as both have relatively higher percentages in this column. The effect is strongest for Greater Columbia RSN, which has 14.9% of the Medicaid Eligibles, 10.2% of the state population, and 10.0% of the SMI as estimated by this study. However, it could be argued that these regions have more individuals living in poverty, more barriers to accessing mental health services, and greater difficulty reporting homelessness, which may result in under-representation of individuals with SMI/SED.

Why the Differences in Medicaid Eligibility Across Regions?

What leads to variations in rates of Medicaid eligibility across regions? The answer to that question is important given the role Medicaid eligibility plays in the state, its suggested use as a proxy measure of prevalence, and the emphasis being place on standardizing rates across the state. We speculate on potential explanations below:

1. One factor might be economic status: Depressed areas would be expected to have more Medicaid Eligibles. An examination of these factors relative to regional economic indicators (not part of the original charge for this study) may be warranted.
2. Another factor may be household composition. Urban areas, especially King County, tend to have a higher proportion of working adults and lower proportions of children and senior citizens, who are more likely to be dependent on Medicaid.

3. There may be regional differences in the way Medicaid eligibility is facilitated, with the degree of vigor in which it is pursued either by clients or by providers, and in the way it is determined, both in terms of process and criteria.

Areas where Medicaid rates seem lower are densely populated; areas where Medicaid rates are higher than predicted by population estimates are more sparsely populated. There may be factors associated with Medicaid eligibility, such as magnet effects in sparsely populated centers, so that cities like Spokane, Wenatchee, and Yakima achieve an economic drift of low-income persons.

These initial thoughts about differences are not intended as substantive conclusions or recommendations. They are offered as speculation about data in a system that uses data for critical management, oversight, and resource allocation decisions. Understanding these data would seem critical if significant weight were to be placed on their values.

Ranking RSNs and Use of Medicaid Eligibles as a Proxy

Table 10.6 presents the data from Table 10.5 as ordinal ranks, similar to the methodology used in the Blueprints study. This table shows that the relative ranks of the RSNs do not change regardless of the prevalence estimation method used, nor do estimates differ from population ranks. The only exception is the case where Timberlands RSN replaced Chelan-Douglas RSN as the 10th ranked RSN in terms of number of Medicaid Eligibles. King County has the highest rank on every count--an expected result. That Thurston-Mason RSN was ranked 8th by every prevalence method and is the 8th largest RSN is the typical result. Using different approaches to addressing prevalence, including using Medicaid Eligibles as a proxy for SMI, does not change the relative ranks of RSNs with regard to their prevalence estimates.

For Medicaid eligibility to serve consistently as a proxy for SMI in the distribution of need among RSNs, it is not sufficient for there to be a strong rank order correlation (illustrated by Table 10.6) between estimates of SMI and estimates of Medicaid eligibility. We must also assume that the distributions of Medicaid Eligibles and persons with SMI have the same shape. Table 10.5 suggests this is not the case, since RSNs do not always have the same percentages of total SMI and of total Medicaid Eligibles. The difference in the shape of the distributions can also be represented in terms of the ratio of Medicaid Eligibles to SMI in each region. Table 10.7 presents these ratios, comparing numbers of Medicaid Eligibles to the race-neutral estimates from Table 10.3.

Table 10.6
RSN Rankings for Each Prevalence Study

RSN	Estimated SMI (Households-Race Neutral) + MiniStudies	SMI Estimates from Blueprints	PEMINS SMI <200/250% FPL + MiniStudies	# Needing Public MH Services (Blueprints)	NCS Estimates for WA	Number of Medicaid Eligibles	Population
Chelan-Douglas	10	10	10	*	10	*	10
Clark County	6	6	6	6	6	6	6
Grays Harbor	*	*	*		*	*	14
Greater Columbia	4	4	4	4	4	4	4
King County	1	1	1	1	1	1	1
North Central	9	9	9	9	9	9	9
North Sound	2	2	2	2	2	2	2
Northeast	*	*	*	*	*	*	13
Peninsula	7	7	7	7	7	7	7
Pierce County	3	3	3	3	3	3	3
Southwest	*	*	*	10 (tie)	*	*	12
Spokane County	5	5	5	5	5	5	5
Thurston-Mason	8	8	8	8	8	8	8
Timberlands	*	*	*	10 (tie)	*	10	11

*Generally 2 % or less, with very little differences in those not ranked in the top ten.

Table 10.7
Ratios of Medicaid-Eligible Persons to Estimates of Persons with SMI, by RSN

RSN	All SMI	SMI <200/250% FPL	Medicaid Eligibles	Elig:SMI	Elig:SMI <200/250% FPL
Chelan-Douglas	4,978	2,902	17,282	3.5	6.0
Clark County	17,489	8,613	50,556	2.9	5.9
Grays Harbor	3,411	1,906	13,885	4.1	7.3
Greater Columbia	29,544	16,945	123,341	4.2	7.3
King County	88,144	39,477	176,077	2.0	4.5
North Central	6,731	4,158	32,372	4.8	7.8
North Sound	46,759	22,376	115,091	2.5	5.1
Northeast	3,436	1,959	14,867	4.3	7.6
Peninsula	15,616	7,935	38,741	2.5	4.9
Pierce County	36,255	18,628	101,139	2.8	5.4
Southwest	4,715	2,519	17,599	3.7	7.0
Spokane County	22,288	12,425	73,500	3.3	5.9
Thurston-Mason	12,518	6,262	33,396	2.7	5.3
Timberlands	4,493	2,485	18,132	4.0	7.3
Total	295,884	148,732	829,508	2.8	5.6

Table 10.7 demonstrates considerable variation in ratios of Medicaid Eligibles to SMI, ranging from a low of 2.0 in King County to a high of 4.8 in North Central. These variations help describe the magnitude of the shifts in percentages between King County and Greater Columbia that was demonstrated in Table 10.5. Pierce RSN approximates the total population ratio of Eligibles to SMI, and Chelan-Douglas and Pierce RSNs represent the median ratios among RSNs. Looking at the ratios of Medicaid Eligibles to SMI estimates at 200% of poverty we see a similar pattern. Here the range is from a low of 4.5 in King County to a high of 7.8 in North Central.

Rank orders of prevalence estimates provide an initial validity check and permit gross comparisons among estimates and proxy measures, but gloss over differences between RSNs. Percentages or shares of the total provide more detailed information about the relative proportion of the population estimated to be in each RSN. The ratios in Table 10.7 provide additional information about the relationship between Medicaid eligibility and prevalence of SMI/SED. Closer examination of ratios sheds additional light by showing that the relationship between Medicaid eligibility and SMI is more complex than just the share-of-total issue.

Some RSNs, King County primarily and to a lesser extent North Sound RSN, have lower ratios of Eligibles to SMI than do other RSNs. This could be interpreted to mean that Medicaid eligibility is not a good proxy for these regions and may underestimate the

prevalence of SMI/SED in these regions. These ratios support the argument made by some of the larger RSNs that there are a number of SMI persons who are disproportionately concentrated in more populous areas. Some of these concerns were described in Chapter 9 of this study. Visual inspection of these data suggests a linear relationship between size and these Medicaid-to-SMI ratios.

Similarly, the rural RSNs, consisting primarily of counties known to have lower median incomes and more poverty, tend to have higher ratios. This does not necessarily mean they have fewer persons with SMI/SED, but due to economic issues in the region may have more persons who are eligible for Medicaid. It may be that they simply have higher proportions who are eligible for economic rather than disability reasons. It might prove fruitful to look closer at the subtypes of Medicaid eligibility to determine whether threshold criteria reflecting disability as well as economic status might more closely reflect the rates of SMI/SED found in this and other studies.

What We Learned

At the end of a study such as this one, the question should always be raised: "Was it worth it?" Not all the costs of this study can be measured by the MHD funding devoted to it. RSN, provider, and advocacy representatives put much effort into their participation in PAC, and in their thoughtful review, input, and guidance at each step of this two-year study. Dr. Ron Manderscheid at the Center for Mental Health Services at SAMHSA provided substantial logistics support, and the Washington Community Mental Health Council provided substantial assistance with the community residential study without any compensation.

The study is being offered as a valuable resource to the state by offering the best available estimates of SMI and SED in Washington State--the primary purpose of the study. The study also accomplished more in pushing the methodological envelope by studying specific sub-populations and by using a political consensus-process to guide the study. PAC members are to be commended for their diligence, patience, and hard work in guiding this effort.

So what did we learn, beyond the numbers? The following recommendations suggest how the state could proceed.

Recommendations

1. Conservative, transparent, and defensible prevalence estimates are critical for studies that use complex estimation methodologies, especially when the results may be used in policy, planning, and funding decisions. This yardstick is recommended for future efforts to estimate prevalence in Washington State.

2. Studies in which results might be contentious or challenged should engage a stakeholder group and provide real opportunity for input. The active participation of PAC (a broad constituency of providers, administrators, researchers, and advocates) in this study was invaluable in guiding the process. Much was learned by all parties, and a common conceptualization of the issues emerged and informed the resulting product. We would urge participation by stakeholders at all levels in future studies.
3. When key data are going to be used in policy and resource allocation decisions, regenerating estimates every two or three years is advisable, especially when methods depend upon shifting demographic data, such as economic indicators. New methods, federally funded studies, and routine data collection activities are evolving rapidly and are quickly disseminated. Revisiting studies periodically can capitalize on these enhancements. This can be done cost-effectively if the focus is maintained on easily accessible aggregate data from unbiased sources such as the Office of Financial Management, the U.S. Census Bureau, and a variety of Federal, state, and local data repositories.

Revisiting the topic regularly will continue to contribute to the sophistication and understanding of all stakeholders. The use of consistent methods over time can provide comparison data and the opportunity to continually refine estimates. Because capitation is a critical component of virtually all managed care, understanding precisely how we define and count people needing services will remain vitally important.

4. The results of this study suggest that Medicaid eligibility in and of itself is an adequate proxy estimator of SMI/SED for most RSNs, but not all. For this reason it is not an ideal proxy, and in some regions the use of Medicaid eligibility may underestimate the number in need of services. Medicaid eligibility does have a strong relationship with the prevalence of SMI/SED, but it should not be used exclusively to estimate prevalence or to guide decisions about the funding and administration of mental health programs. It might be that some subtypes of Medicaid eligibility, such as those that reflect disability criteria as well as economic criteria, may prove a better proxy measure of SMI than does the broader category of Medicaid eligibility.

Data that are going to be used to guide public mental health administration, policy, and funding should be thoroughly understood. Examination of the Medicaid Eligibles numbers should be subjected to similar scrutiny if they are to be used to guide public mental health administration, policy, and funding.

5. The current estimation models are based on the original WANAHS survey, conducted in 1993-1994 on approximately 7000 households. The empirical relationships found in that survey may still hold, but that is an empirical question. SAMHSA has funded the more current NCS-II, and the Western Interstate Commission on Higher Education has developed similar prevalence estimates for a number of states. Because surveys are very expensive, “piggy-backing” on existing or new efforts can lead to improvements in estimation models without bearing the

cost of re-surveying. Another option is to combine and coordinate surveys being conducted by state agencies for various purposes.

6. The race-neutral approach used in this study satisfied some of the concerns about research methods and cultural bias, but not all. The methods used here are consistent with current literature and as such are defensible. However, to assume that the race-neutral methods employed satisfy all concerns or answer all questions about this very important aspect of epidemiological research would be a mistake. Further studies are needed to address the unique needs and issues of providing services to all racial and ethnic groups.
7. With regard to the study of the prevalence of SED in children, the new federally funded NCS-II study is near release. A hybrid approach, taking the best of newly-released efforts, and combining these with the best attributes of local studies, like this one and Blueprints, could lead to significant improvements in estimating prevalence of SED in children.

Equally important, more careful consideration and more clarity is needed in discerning the subset of children who are dependent upon publicly funded systems for mental health care.

8. Confidence intervals need to be calculated for the estimates derived in this study. Although methodologically challenging and costly, these parameters would permit assessment of the statistical significance of the differences observed between RSNs and the precision of these estimates. Confidence intervals have been provided in the large, well-funded national prevalence surveys, as well as in the previous PEMINS study. The current study has been criticized for not including confidence intervals to date.

References

Adult Prevalence Literature

Children's Prevalence Literature

Annotated Bibliography

Adult Prevalence Literature

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Annotated Bibliography

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The sample was comprised of 104 Burmese political dissidents who had fled to Thailand after a 1988 uprising and who were registered with the United Nations High Commissioner as persons of concern. Mental health status was assessed using a semistructured interview that included versions of the Hopkins Symptom Checklist-25 and the Harvard Trauma Questionnaire. A cumulative trauma score was computed for each participant by summing scores for all traumatic events that the individual reported during four different time periods. Based on these evaluations, it was determined that 38% of the refugees suffered from major depressive disorder, while 23% suffered from PTSD.

- Angold, A., Costello, E. J., Farmer, E. M. Z., Burns, B. J., & Erkanli, A. (1999). Impaired but undiagnosed. *Journal of the American Academy of Child and Adolescent Psychiatry, 38* (2), 129-137.

The sample consisted of 1015 youths aged 9, 11, and 13 years old who were part of the first wave of the Great Smoky Mountains Study. The child and primary caretaker were separately interviewed about the child's psychiatric status and service use using the Child and Adolescent Psychiatric Assessment and the Child and Adolescent Services Assessment. The Child and Adolescent Burden Assessment was administered to the parent only. It was determined that 7.4% of the children had a psychiatric diagnosis with impairment, 11.5% had a psychiatric diagnosis with no impairment, and 14.2% had impairment but no psychiatric diagnosis. The overall prevalence rate for serious emotional disturbance was estimated to be 7.4%.

- Bird, H. R., Canino, G., Rubio-Stipec, M., & Ribera, J. C. (1987). Further measures of the psychometric properties of the children's global assessment scale. *Archives of General Psychiatry, 44*, 821-824.

A random sample of 191 Puerto Rican children between the ages of 4 and 16 were drawn from both clinical and community settings. The sample was then stratified by sex and age. The children were evaluated using the Diagnostic Interview Schedule for Children, the Children's Global Assessment Scale, and the Achenbach and Edelbrock Child Behavior Checklist. The following prevalence rates were obtained: 15.2% for oppositional disorder, 13.6% for attention deficit disorders, 9.9% for anxiety disorders, 8.9% for functional enuresis, 8.4% for adjustment disorders, 6.3% for dysthymic disorder, 4.7% for major affective disorders, 4.2% for personality disorders, 2.6% for conduct disorder, 2.6% for specific development disorders, and 2.1% for mental

retardation. The overall prevalence rate for serious emotional disturbance was estimated to be 11%.

Bland, R.C., Newman, S.C., Dyck, R.J., & Orn, H. (1990). Prevalence of psychiatric disorders and suicide attempts in a prison population. *Canadian Journal of Psychiatry, 35*, 407-413.

A random sample of 180 male prisoners, aged 18 to 44, from Edmonton, Alberta was interviewed using the Diagnostic Interview Schedule. A comparison group of 1006 similarly aged male residents of Edmonton were also interviewed. Based on this survey, the following lifetime prevalence rates of psychiatric disorders in a prison sample were obtained: 2% for schizophrenia, 4% for mania/bipolar, 17% for depression, 11% for dysthymia, 7% for panic, 9% for obsessive-compulsive, 79% for alcohol dependence, 52% for drug dependence, and 57% for antisocial personality disorder. The overall prevalence rate for serious mental illness was estimated to be 23%.

Breakey, W.R., Fischer, P.J., Kramer, M., Nestadt, G., Romanoski, A.J., Ross, A., Royall, R.M., & Stine, O.C. (1989). Health and mental health problems of homeless men and women in Baltimore. *Journal of the American Medical Association, 262* (10), 1352-1357.

The sample consisted of 203 homeless persons who were randomly selected from a sample of 528 homeless persons from missions, shelters, and jails in Baltimore. Psychiatric examinations were performed by experienced psychiatrists using the Standardized Psychiatric Examination. The following lifetime prevalence rates of psychiatric disorders were reported: 14% for schizophrenia, 7.5% for bipolar disorder, and 13% for major depression. The overall prevalence rate for serious mental illness was estimated to be 34.5%.

Buckner, J. C., & Bassuk, E. L. (1997). Mental disorders and service utilization among youths from homeless and low-income housed families. *Journal of the American Academy of Child and Adolescent Psychiatry, 36* (7), 890-900.

A random sample of 94 homeless and never-homeless poor youths aged 9 through 17 were assessed using the Diagnostic Interview Schedule for Children. Based on the interviews, it was determined that 6.4% had a psychiatric diagnosis and 6.4% had a psychiatric diagnosis with impairment. The overall prevalence rate for serious emotional disturbance was estimated to be 6.4%.

Chiles, J.A., Von Cleve, E., Jemelka, R.P., & Trupin, E.W. (1990). Substance abuse and psychiatric disorders in prison inmates. *Hospital and Community Psychiatry, 41* (10), 1132-1134.

A sample of 109 Washington State prisoners was interviewed using the Diagnostic Interview Schedule. The following lifetime prevalence rates of

psychiatric disorders were obtained: schizophrenia (5%), schizophreniform (2%), bipolar disorder (4%), depression (10%), dysthymia (4%), alcohol dependence (66%), drug dependence (56%), and antisocial personality disorder (44%). The overall prevalence rate for serious mental illness was estimated to be 21%.

Costello, E. J., Angold, A., Burns, B. J., Erkanli, A., Stangl, D. K., & Tweed, D. L. (1996a). The Great Smoky Mountains Study of youth: Functional impairment and serious emotional disturbance. *Archives of General Psychiatry*, *53*, 1137-1143.

A representative population sample of 9-, 11-, and 13-year-olds from a predominantly rural area of North Carolina was selected for examination. Three measures of functional impairment (i.e., Child and Adolescent Psychiatric Assessment, Child and Adolescent Functional Assessment Scale, and Children's Global Assessment Scale) were used. Serious emotional disturbance was identified in 4% to 8% of the study population, depending on the measure of impairment. The rate of DSM-III-R disorder ignoring impairment was 20.3%.

Costello, E., J., Angold, A., Burns, B. J., Stangl, D. K., Tweed, D. L., Erkanlin, A., & Worthman, C. M. (1996b). The Great Smoky Mountains Study of youth: Goals, design, methods, and the prevalence of DSM-III-R disorders. *Archives of General Psychiatry*, *53* 1129-1136.

The Great Smoky Mountains Study was a longitudinal study of the development of psychiatric disorder and need for mental health services in rural and urban youth. A representative sample of 4500 children aged 9, 11, and 13 years old was recruited from 11 counties in western North Carolina. Stratification on risk for mental health service use reduced the sample size to 1015. High risk was defined as a score in the range expected to be in the top quartile of parental responses to the Child Behavior Checklist externalizing scale. A 1 in 10 random sample of children who scored below the cutoff point made up the low-risk group. Additional measures used in this study included the Child and Adolescent Psychiatric Assessment, the Children's Global Assessment Scale, the Child and Adolescent Functional Assessment Scale, the Child and Adolescent Services Assessment, and the Child and Adolescent Burden Assessment. This study presented the baseline estimates of psychiatric disorders in the sample. The most common diagnoses were anxiety disorders (5.7%), enuresis (5.1%), tic disorders (4.2%), conduct disorder (3.3%), oppositional defiant disorder (2. %), and hyperactivity (1.9%). The 3-month prevalence of any DSM-III-R axis I disorder was 20.3%.

Costello, E. J., Messer, S. C., Rird, H. R., Cohen, P., & Reinherz, H. Z. (1998). The prevalence of serious emotional disturbances: A re-analysis of community samples. *Journal of Child and Family Studies*, *7* (4), 411-432.

Several community-based data sets were reanalyzed to provide an empirically-based estimate of the prevalence in the population of serious emotional

disturbance in children and adolescents. In the various data sets, participants ranged in age from 4 to 18 and came from five different areas of the United States: Boston, upstate New York, North Carolina, Pittsburgh, and Puerto Rico. Metropolitan, non-metropolitan urban, and rural areas were all represented. Based on the analyses, it was determined that the estimate of serious emotional disturbance with global impairment was 5.4% and the estimate of serious emotional disturbance with domain-specific impairment was 7.7%. The overall prevalence rate of serious emotional disturbance was estimated to be 5.4%.

Dvoskin, J.A., & Steadman, H.J. (1989). Chronically mentally ill inmates: The wrong concept for the right services. *International Journal of Law and Psychiatry*, 12, 203-210.

A mostly random sample of 3684 New York State prisoners completed the Level of Care Survey. The survey results indicated that 5% of the inmates were severely psychiatrically disabled, while 10% were significantly psychiatrically disabled. The overall estimate for serious mental illness in this sample was estimated to be 15%.

Fichter, M. M., Koniarczyk, M., Greifenhagen, A., Koegel, P., Quadflieg, N., Wittchen, H. U., & Woelz, J. (1996). Mental illness in a representative sample of homeless men in Munich, Germany. *European Archives of Psychiatry & Clinical Neuroscience*, 246, 185-196.

A stratified (by type of residence or service use) random sample of 146 homeless males from shelters, meal services, or the streets in Munich, Germany were evaluated for mental illness. The Diagnostic Interview Schedule was used for diagnostic classification according to the DSM-III. Based on the interviews, the following point prevalence rates were obtained: 9.6% for schizophrenia and 18.5% for affective disorder. The following lifetime prevalence rates were obtained: 12.4% for schizophrenia and 36.3% for affective disorder. The overall point prevalence rate was estimated to be 28.1%, while the overall lifetime prevalence rate was estimated to be 48.7%.

German, P. S., Rovner, B. W., Burton, L. C., Brant, L. J., & Clark, R. C. (1992). The role of mental morbidity in the nursing home experience. *The Gerontologist*, 32(2), 152-158.

The sample was comprised of 454 persons admitted to eight nursing homes in the Baltimore area during a 13-month time period. The evaluation protocol included the Modified Present State Examination, Mini-Mental State Examination, Hamilton Depression Scale, DSM-III-R Assessment Form, Katz Index of ADL, and Psychogeriatric Dependency Rating Scale. Based on the examinations, a lifetime prevalence rate for schizophrenia and depression/affective disorder was estimated to be 0.2% and 10.6%, respectively. The overall estimate for serious mental illness was estimated to be 10.8%.

Guy, E., Platt, J.J., Zwerling, I., & Bullock, S. (1985). Mental health status of prisoners in an urban jail. *Criminal Justice and Behavior*, 12 (1), 29-53.

A sample of 486 pre-trial detainees from the Philadelphia County Prison System completed a detailed survey of mental health status. The last digit of the participants' prison number served as the basis for selection, and every third inmate was selected. The survey included the Structured Clinical Interview as well as various personality and intelligence tests. The following prevalence rates of psychiatric disorders in this sample were obtained: 12% for schizophrenia, 3% for mania/bipolar, 5% for depression, 9% for personality disorder, and 25% for alcohol dependence. The overall prevalence rate for serious mental illness was estimated to be 20%.

Halfon, N., & Newacheck, P. W. (1999). Prevalence and impact of parent-reported disabling mental health conditions among U.S. children. *Journal of the American Academy of Child and Adolescent Psychiatry*, 38 (5), 600-609.

Data from the National Health Interview Survey was analyzed to determine the prevalence and impact of disabling childhood mental health conditions. The random sample was comprised of 99,513 children aged 0-17 years living in households in the United States between 1992 and 1994. An extensive questionnaire about physical and mental health was created by the researchers and administered to the parents or the child if the child was 17 years old. It was determined that 0.1% of the sample suffered from a chronic mental health condition with severe disability, 1.92% suffered from a chronic mental health condition with moderate disability, and 0.1% suffered from a chronic mental health condition with mild disability. The overall prevalence rate of serious emotional disturbance was estimated to be 2.13%.

Haugland, G., Siegel, C., Hopper, K., & Alexander, M.J. (1997). Mental illness among homeless individuals in a suburban county. *Psychiatric Services*, 48 (4), 504-509.

A random sample of 201 single persons who applied for residential assistance in Westchester County, New York was evaluated for mental illness. For this evaluation, information from an intake assessment, including DSM-III-R psychiatric diagnoses, was augmented by a semistructured interview. The semistructured interview included the World Health Organization Lifechart Schedule. In addition, the Short Michigan Alcohol Screening Test was used to assess alcohol use. The following lifetime prevalence rates were obtained: 10% for schizophrenia-spectrum disorders, 4% for mood disorders (bipolar and major depression), and 1% for atypical psychoses. The overall prevalence rate for serious mental illness was estimated to be 15%.

Herrman, H., McGorry, P., Bennett, P., van Riel, R., McKenzie, D., & Singh, B. (1989). Prevalence of severe mental disorders in disaffiliated and homeless people in inner Melbourne. *American Journal of Psychiatry*, 146(9), 1179-1184.

A stratified (by sex) random sample of 382 homeless persons who were occupants of homeless shelters and low-cost rooming houses in inner-city Melbourne, Australia were interviewed. Modules of the Structured Clinical Interview for DSM-III-R were used to construct the primary diagnostic tool. The Mini-Mental State examination was used to indicate whether or not a participant was cognitively impaired. Based on the interviews, the following point prevalence rates were obtained: 1% for bipolar disorder, 7% for major depression, 12% for schizophrenia, and 2% for schizoaffective. The following lifetime prevalence rates were estimated: 3% for bipolar disorder, 20% for major depression, 13% for schizophrenia, and 2% for schizoaffective. The overall point prevalence rate and lifetime prevalence rate for serious mental illness was estimated to be 22% and 38%, respectively.

Herrman, H., McGorry, P., Mills, J., & Singh, B. (1991). Hidden severe psychiatric morbidity in sentenced prisoners: An Australian study. *American Journal of Psychiatry*, 148 (2), 236-239.

A random sample of 158 male and 31 female Australian prisoners was interviewed using the Structured Clinical Interview for DSM-III-R. Based on the interviews, it was found that 3% of the prisoners received diagnoses of psychotic disorders, 10% received a diagnosis of major depression, 2% received a diagnosis of dysthymia, and 25% received diagnoses of alcohol/drug abuse. The overall prevalence rate for serious mental illness was estimated to be 13%.

James, J.F., Gregory, D., Jones, R.K., & Rundell, O.H. (1980). Psychiatric morbidity in prisons. *Hospital and Community Psychiatry*, 31 (10), 674-677.

A random sample of 174 Oklahoma State prisoners was assessed using the Brief Psychiatric Rating Scale and a standardized battery of psychological tests. The following prevalence rates of psychiatric disorders in this sample were obtained: 5% for schizophrenia, 35% for personality disorder, and 25% for alcohol dependence.

Jemelka, R. (1991). Evaluation of mental health services at the Pierce County Detention and Corrections Center: Final report. 1-26.

A sample of 80 Pierce County Jail Friday night admissions was administered the modified version of Teplin's Referral Decision Scale (based on the Diagnostic Interview Schedule). Based on the interviews, it was determined that 3% of the prisoners were suicidal and 42% were intoxicated. In addition, 10% of the incoming prisoners had a major mental disorder, while 25% exhibited some signs of mental disorder and/or had histories of treatment for major mental disorders.

The overall prevalence rate for serious mental illness in this sample was estimated to be 15%.

Kinzie, J. D., Boehnlein, J. K., Leung, P. K., Moore, L. J., Riley, C., & Smith, D. (1990). The prevalence of posttraumatic stress disorder and its clinical significance among Southeast Asian refugees. *American Journal of Psychiatry*, 147 (7), 913-917.

All 322 patients at a psychiatric clinic for Indochinese refugees were surveyed to determine the presence of PTSD. To determine the prevalence of PTSD, all psychiatrists in the clinic systematically reinterviewed their patients using a DSM-III-R checklist. Based on the interviews, it was determined that 81% of the patients suffered from depression. In addition, the point prevalence of PTSD was estimated to be 70%, while the lifetime prevalence was estimated to be 75%.

Koegel, P., Burnam, M.A., & Farr, R.K. (1988). The prevalence of specific psychiatric disorders among homeless individuals in the inner city of Los Angeles. *Archives of General Psychiatry*, 45, 1085-1092.

A stratified (by type of residence or service use) random sample of 328 homeless persons from missions, shelters, meal services, and day centers in Los Angeles was interviewed using the Diagnostic Interview Schedule. Based on the interviews, the following point prevalence rates were obtained: 11.5% for schizophrenia and 20.9% for affective disorder. The following lifetime prevalence rates were obtained: 13.7% for schizophrenia and 20.1% for affective disorder. The overall point and lifetime prevalence rates for serious mental illness were estimated to be 32.4% and 33.8%, respectively.

Lahey, B. B., Flagg, E. W., Rird, H. R., Schwab-Stone, M. E., Canino, G., Dulcan, M. K., et al. (1996). The NIMH methods for the epidemiology of child and adolescent mental disorders (MECA) study: Background and methodology. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35 (7), 855-864.

This collaborative study, known as the Methods for the Epidemiology of Child and Adolescent Mental Disorders (MECA) study, was conducted to develop methods for surveys of mental disorder and service utilization in samples of children and adolescents. Samples of youths aged 9 through 17 were selected at four different sites. The 1285 pairs of youths and their adult caretakers were administered a computer-assisted version of the Diagnostic Interview Schedule for Children, Version 2.3 and the Service Utilization and Risk Factors Interview. The findings indicated that large-scale epidemiological surveys of mental disorders involving lengthy interviews in the homes of youths and their adult caretakers are acceptable to the community and can achieve good response rates.

Leaf, P. J., Alergia, M., Cohen, P., Goodman, S. H., Horwitz, S. M., Hoven, C. W., Narrow, W. E., Vaden-Kiernan, M., & Regier, D. (1996). Mental health service use in the community and schools: Results from the four-community MECA study. *Journal of the American Academy of Child and Adolescent Psychiatry, 35* (7), 889-897.

The sample was comprised of the 1285 children aged 9 through 17 who were selected as part of the four-community MECA project. Both parents and children were administered the Diagnostic Interview Schedule for Children, Version 2.3 and the Children's Global Assessment Scale. The findings of this study indicated that agreement between reports of parents and youths regarding the use of mental health and substance abuse services showed substantial inconsistencies. In addition, it was reported that at three of the four sites, the majority of children who met criteria for a psychiatric disorder and who scored 60 or less on the CGAS reported some mental health-related service in the previous year.

Mollica, R. F., Donelan, K., Tor, S., Lavell, J., Elias, C., Frankel, M., & Blendon, R. J. (1993). The effect of trauma and confinement on functional and mental health status of Cambodians living in Thailand-Cambodia border camps. *Journal of the American Medical Association, 270* (5), 581-586.

In 1990, 1000 households were randomly selected from Site 2, the largest Khmer camp that houses Cambodians living on the Thailand-Cambodia border, for a survey. One adult aged 18 or older was randomly selected from each of the households, yielding a total sample size of 993. The instrument used to assess mental health status was developed by a team of researchers. The trauma history and mental health status questions were drawn from the Indochinese version of the Hopkins Symptom Checklist-25 and the Harvard Trauma Questionnaire. Health status, disability, and social functioning items were drawn in part from the short form of the Medical Outcomes Study general health survey. The survey results indicated that 55% of the participants suffered from depression and 15% suffered from PTSD.

Mollica, R. F., McInnes, K., Sarajlic, N., Lavelle, J., Sarajlic, I., & Massagli, M. (1999). Disability associated with psychiatric comorbidity and health status in Bosnian refugees living in Croatia. *Journal of the American Medical Association, 282* (5), 433-439.

In 1996, Bosnian refugee adults living in a camp established by the Croatian government near the city of Varazdin were surveyed to determine psychiatric morbidity. A total of 573 families lived in this camp, and one adult respondent 18 years of age or older was randomly selected from each family. Of the target sample of 573 adults, 534 agreed to participate in the study. The Hopkins Symptom Checklist-25 and the Harvard Trauma Questionnaire were used to measure psychological symptoms. Functional disability was measured using the physical functioning scale of the Medical Outcomes Study 20-Item Short-Form

Health Survey. Other measures of disability included a World Health Organization physical functioning scale, a measure of perceived energy level, and a measure of self-perceived health. The results of this survey indicated that 39.2% of the refugees suffered from depression and 26.3% suffered from PTSD. Also, 20.6% reported symptoms comorbid for both disorders.

Motiuk, L.L., & Porporino, F.J. (1991). The prevalence, nature, and severity of mental health problems among federal male inmates in Canadian penitentiaries. Correctional Service of Canada.

A stratified random sample of 2812 Canadian prisoners was interviewed using the Diagnostic Interview Schedule. The interview results indicated the following prevalence rates for psychiatric disorders: 6% for schizophrenia, 5% for depression, 30% for anxiety disorder, 13% for phobias, 47% for alcohol dependence, and 57% for antisocial personality disorder. The overall prevalence rate for serious mental illness in this sample was estimated to be 11%.

Narrow, W. E., Regler, D. A., Goodman, S. H., Rae, D. S., Roper, M. T., Bourdon, K. H., Hoven, C., & Moore, R. (1998). A comparison of federal definitions of severe mental illness among children and adolescents in four communities. *Psychiatric Services*, 49 (12), 1601-1608.

In this study, different definitions of serious emotional disturbance were applied to data collected as part of the Methods for the Epidemiology of Child and Adolescent Mental Disorders (MECA) survey conducted by the National Institute of Mental Health. The sample was comprised of 1285 children aged 9 to 17. The children were assessed using the Diagnostic Interview Schedule for Children, 2nd version, and the Child Global Assessment Scale. Based on the U.S. Senate health care definition, 3% of the youths were considered to meet the criteria for serious emotional disturbance. Based on the Individuals with Disabilities Education Act, 12% met the criteria for serious emotional disturbance. The overall prevalence rate of serious emotional disturbance was estimated to be 3 to 12%.

Phillips, C. D., & Spry, K. M. (2000). Characteristics and care of U.S. nursing home residents with a history of chronic mental illness. *Canadian Journal on Aging*, 19 (suppl. 2), 1-17.

The sample was comprised of 72,000 nursing home residents from Kansas, Maine, Mississippi, and South Dakota. The assessment tool used was a variant of the Minimum Data Set for Nursing Home Resident Assessment and Care Screening. The data that was collected reflects the characteristics of the nursing home population in the states over the course of the year 1993; the data do not represent the nursing home population in the study states at a single point in time. It was determined that 7.4% of residents had a history of persistent/chronic mental illness.

Powell, T.A., Holt, J.C., & Fondacaro, K.M. (1997). The prevalence of mental illness among inmates in a rural state. *Law and Human Behavior*, 21 (4), 427-438.

A stratified random sample of 213 inmates (jail and prison) was drawn from a population of 875 inmates in a rural Northeastern state. The inmates were interviewed using the Diagnostic Interview Schedule. Based on the interviews, the following prevalence rates of psychiatric disorders were obtained: schizophrenia (2.8%), major affective disorder (18%), anxiety disorder (30%), dysthymia (4.7%), alcohol and drug dependence (56%), and antisocial personality disorder (47%). The overall prevalence rate of serious mental illness was estimated to be 21%.

Salize, H. J., Horst, A., Dillmann-Lange, C., Killmann, U., Stern, G., Wolf, I., Henn, F., & Roessler, W. (2001). Needs for mental health care and service provision in single homeless people. *Social Psychiatry & Psychiatric Epidemiology*, 36, 207-216.

A random sample of 102 single, homeless persons from halfway houses, shelters, community-provided housing, or meal services in Mannheim, Germany were assessed. The main instrument that was used to diagnose mental disorders was the German version of the Structured Clinical Interview for DSM-IV. The Mini-Mental Status Test was used to provide information about mental retardation. The Needs for Care Assessment was used to assess mental health care needs. The following point prevalence rates were reported: 6.9% for schizophrenia and 6.9% for affective disorders. The overall point prevalence rate of serious mental illness was estimated to be 13.8%.

Shaffer, D., Fisher, P., Dulcan, M. K., Davies, M., Piacentini, J., Schwab-Stone, M. E., Lahey, B. B., Bourdon, K., Jensen, P. S., Bird, H. R., Canino, G., & Regier, D. A. (1996). The NIMH diagnostic interview schedule for children, version 2.3 (DISC-2.3): Description, acceptability, prevalence rates, and performance in the MECA study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35 (7), 865-877.

The sample was comprised of the 1285 children aged 9 through 17 who were selected as part of the four-community MECA project. Both parents and children were administered the Diagnostic Interview Schedule for Children, Version 2.3 and the Children's Global Assessment Scale (CGAS). In this study, prevalence rates were presented for different conditions. It was reported that 39.4% of the children met DSM criteria for a psychiatric diagnosis, 22.8% met DSM criteria for a psychiatric diagnosis and scored below 70 on the CGAS, 12.3% met DSM criteria for a psychiatric diagnosis and scored below 60 on the CGAS, and 5.7% met DSM criteria for a psychiatric diagnosis and scored below 50 on the CGAS. The overall prevalence rate of serious emotional disturbance was estimated to be 5.7%.

Teplin, L.A. (1994). Psychiatric and substance abuse disorders among male urban jail detainees. *American Journal of Public Health, 84* (2), 290-293.

A random sample of 748 Cook County Jail (Chicago) detainees was interviewed using the Diagnostic Interview Schedule. The following prevalence rates of psychiatric disorders were obtained: 5% for schizophrenia, 13% for depression, 9% for dysthymia, 2% for panic disorder, 19% for phobias, 5% for obsessive-compulsive, 51% for alcohol dependence, 32% for drug dependence, and 49% for antisocial personality disorder. The overall prevalence rate of serious mental illness was estimated to be 18%.

Teplin, L.A., Abram, K.M., McClelland, G.M., Dulcan, M.K., & Mericle, A.A. (2002). Psychiatric disorders in youth in juvenile detention. *Archives of General Psychiatry, 59*, 1133-1143.

A random sample of 1829 male and female youth, aged 10 through 18, was selected from intake into the Cook County Juvenile Temporary Detention Center. The sample was stratified by age, sex, race/ethnicity, and legal status. The participants were assessed using the Diagnostic Interview Schedule for Children, version 2.3, which assesses the presence of disorders in the past six months. Excluding conduct disorder, it was reported that 60% of the males and 68% of the females met diagnostic criteria and had diagnostic-specific impairment for one or more psychiatric disorders.

Vazquez, C., Munoz, M., & Sanz, J. (1997). Lifetime and 12-month prevalence of DSM-III-R mental disorders among the homeless in Madrid: A European study using the CIDI. *Acta Psychiatrica Scandinavica, 95*, 523-530.

A stratified (by type of residence or service use) random sample of 261 homeless persons from shelters, soup kitchens, social integration services, and the streets of Madrid, Spain was assessed for mental illness. The participants were interviewed using the Composite International Diagnostic Interview, which includes the entire Diagnostic Interview Schedule and the Mini-Mental State Examination. The following point prevalence rates were obtained: 2% for schizophrenia, 5% for recurrent major depression, and 1% for bipolar disorder (mean average taken from other homeless studies reviewed). The following lifetime prevalence rates were obtained: 4% for schizophrenia, 8% for recurrent major depression, and 5.2% for bipolar disorder (mean average taken from other homeless studies reviewed). The overall point and lifetime prevalence rates of serious mental illness were estimated to be 8% and 17.2%, respectively.

Appendix

- A. List of Prevalence Advisory Committee Members
- B. Children's Literature Matrix
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APPENDIX A

List of Prevalence Advisory Committee Members



Prevalence Advisory Group (PAC) & Expert Panel

PAC Membership List (includes past members)

Barbara Hawkins – UW, WIMIRT Western Branch
Bill Hardy – North Central RSN
Cathy Gaylord – Executive Director, Washington Community Mental Health Council
Chris Berry - WSU, WIMIRT Eastern Branch
Dave Dula – Pierce County RSN
Dennis Dyck - WSU, WIMIRT Eastern Branch
Dennis McBride - UW, WIMIRT Western Branch
Frank Jose – Washington Alliance for the Mentally Ill
Gary Rose – Timberlands RSN
Gino Aisenberg – Ethnic Minority Advisory Committee to DSHS-MHD and University of Washington, School of Social Work
Gloria Bailey – King County RSN and Clinical Assistant Professor, Dept. Of Epidemiology, University of Washington
Graydon Andrus – Mental Health Advisory Council and Downtown Emergency Services Center, Seattle.
Greg Long – North Sound RSN
Gregory Robinson – Columbia River Mental Health Services, Vancouver, WA.
Joan Russo – Harborview Medical Center/King County and Associate Research Professor, Department of Psychiatry, University of Washington.
Judy Hall – Research Director, Mental Health Division
Michael McDonell – WSU-WIMIRT Eastern Branch
Nick Hazel - WSU-WIMIRT Eastern Branch
Paul Peterson - UW, WIMIRT Western Branch
Ralph Walter – Northeastern Washington RSN
Richard Onizuka – DSHS/MHD
Robert Duckmanton – Greater Columbia Behavioral Health RSN
Robert Krell – Joint Legislative Audit Review Committee
Ron Jemelka – UW/WSU- WIMIRT Eastern Branch

Shelle Crosby – King County RSN
Steve Norsen – DSHS/MHD
Terri Card – Greater Lakes Mental Health Center, Pierce County

Expert Panel

Ann Vander Stoep – UW, Public Behavioral Health & Justice Policy
Chuck Holzer – University of Texas Medical Branch
Chuck McGee - Western Interstate Commission for Higher Education
Liz Kohlenberg – DSHS/RDA
Marilyn Henderson – Center for MH Services Services
Michael Hendryx – WIMIRT/Eastern Branch
Ron Kessler – Dept. of Health Care Policy, Harvard Medical School
Ron Manderscheid – Center for Mental Health Services, Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services

APPENDIX B

Children's Literature Matrix

Mental Illness in Children			
Study	Population Studied	Method Used	Principal Findings
Angold et al. (1999)	Two-stage general population sample of 1,015 youths aged 9, 11, & 13 years	-Child and Adolescent Psychiatric Assessment (CAPA) -Child and Adolescent Services Assessment (CASA) -Child and Adolescent Burden Assessment (CABA)	-Psychiatric Diagnosis + Impairment 7.4% -Psychiatric Diagnosis w/ no Impairment 11.5% -Impairment w/ no Psychiatric Diagnosis 14.2% Estimate SED 7.4%
Bird et al. (1987)	Random sample of 191 Puerto Rican children between 4-16 yrs drawn from both clinical & community settings. Sample was then stratified by sex & age	-Diagnostic Interview Schedule for Children (DISC) - DSM-III (Axis I, II, IV, & V) -Children's Global Assessment Scale (CGAS) -Achenbach & Edelbrock Child Behavior Checklist (CBCL)	-OD 15.2% -ADD 13.6% -Anxiety Disorders 9.9% -Functional Enuresis 8.9% -Adjustment Disorders 8.4% -Dysthymic Disorder 6.3% -Maj. Affect. Disorders 4.7% -Personality Disorders 4.2% -Conduct Disorder 2.6% -Spec. Devel. Disorder 2.6% -Mental Retardation 2.1% Estimate SED 11%
Buckner et al. (1997)	Random sample of 94 homeless (n=41) & never-homeless poor (n=53) youths aged 9-17.	-DISC	-Psych. Diagnosis only 6.4% -Psych. Diagnosis + Impairment 6.4% Estimate SED 6.4%
Great Smoky Mountain Study: Costello et al. (1996a,b; 1998)	Random sample of 4,500 9, 11, & 13 yr olds from Southern Appalachians were screened for psych symptoms. Children scoring in top 25%, plus a 1 in 10 random sample of remainder, were selected for study (n=1015).	-CBCL for screening. -CAPA -CGAS -CASA -CAPA	Global SED 5.4% Domain Specific SED 7.7% Estimate SED 5.4%
Narrow et al. (1998)	Same sample as MECA study listed below.	Same as MECA study listed below.	Three different definitions of SED: -US Senate health care definition 3% -Individuals with Disabilities Act 12% Estimate SED 3-12%
Halfon et al. (1999)	Random sample (n=99,513) of children aged 0-17 yrs living in households in the United States between 1992-1994.	-Extensive questionnaire of physical & mental health created by the researchers.	-Chronic Mental Health Condition (CMHC)+ severe disability-0.1% -CMHC + moderate disability-1.92% -CMHC + mild disability-0.1% Estimate SED 2.13%
MECA (i.e. Lahey et al.; Leaf et al.; Schaffer et al.; 1996)	Random sample (n=1,285) of children aged 9-17 yrs.	-DISC 2.3 -CGAS	-Psychiatric diagnosis only-39.4% -Psychiatric diagnosis + CGAS<70-22.8% -Psychiatric diagnosis + CGAS<60-12.3% -Psychiatric diagnosis + CGAS<50-5.7% Estimate SED 5.7%

Mental Illness in Children

Study	Population Studied	Method Used	Principal Findings
Blueprints For Effective Mental Health System in WA State	All children aged 0-17 yrs residing in Washington State.	An analysis of data from the Washington State mental health system using nationally adopted prevalence data and data from Western States.	Estimate SED 6.6%

APPENDIX C

Homeless Literature Matrix

Mental Illness in the Homeless

Study	Population Studied	Method Used	Principal Findings
Breakley et al. (1989)	203 homeless persons randomly selected from a sample of 528 homeless persons from missions, shelters & jails in Baltimore.	-Standardized Psychiatric Examination	-Schizophrenia (LT* 14.0%) -Bipolar (LT 7.5%) -Major Depression (LT 13.0%) Estimate SMI (LT 34.5%)
Fichter et al. (1996)	Stratified (by type of residence or service use) random sample of 146 homeless males from shelters, meal services, or the streets in Munich, Germany.	-DIS/DSM-III	-Schizophrenia (P* 9.6%); (LT 12.4%) -Affective Disorder (Bipolar or Maj. Depress.) (P 18.5%) (LT 36.3%) Estimate SMI (P 28.1%) Estimate SMI (LT 48.7%)
Haugland et al. (1997)	Random sample of 201 single persons who applied for residential assistance in Westchester County, New York.	-DSM-III -Short Michigan Alcohol Screening Test -World Health Organization Lifechart Schedule	-Schizophrenia-spectrum disorders (LT 10.0%) -Mood Disorders (Bipolar & Major Depression) (LT 4.0%) -Atypical Psychoses (LT 1.0%) Estimate SMI (LT 15%)
Herrman et al. (1989)	Random stratified (by sex) sample of 382 homeless and persons living in low-cost rooming houses in inner-city Melbourne, Australia.	-SCID-R -Mini-Mental State Examination	-Bipolar (P 1%); (LT 3%) -Major Depression (P 7%); (LT 20%) -Schizophrenia (P 12%); (LT 13%) -Schizoaffective (P 2%); (LT 2%) Estimate SMI (P 22%) Estimate SMI (LT 38%)
Koegel et al. (1988)	Stratified (by type of residence or service use) random sample of 328 homeless persons from missions, shelters, meal services, and day centers in Los Angeles.	-DIS/DSM-III	-Schizophrenia (P 11.5%); (LT 13.7%) -Affective Disorder (Bipolar or Maj. Depress.) (P 20.9%); (LT 20.1%) Estimate SMI (P 32.4%) Estimate SMI (LT 33.8%)
Salize et al. (2001)	Random sample of 102 single, homeless persons from halfway houses, shelters, community-provided housing, or meal services in Mannheim, Germany.	-SCID -Mini-Mental Status Test -Needs for Care Assessment	-Schizophrenia (P 6.9%) -Affective Disorders (P 6.9%) Estimate SMI (P 13.8%)
Vasquez et al. (1997)	Stratified (by type of residence or service use) random sample of 261 homeless persons from shelters, soup kitchens, social integration services, and the streets of Madrid, Spain.	-Composite International Diagnostic Interview (includes the DIS & Mini-mental)	-Recurrent Major Depression (P 5%); (LT 8%) -Schizophrenia (P 2%); (LT 4%) -Mean average of Bipolar Disorder from other homeless studies reviewed (P 1%); (LT 5.2%) Estimate SMI (P 8%) Estimate SMI (LT 17.2%)

* P= Point Prevalence; LT= Lifetime Prevalence

APPENDIX D

Homeless Key Informant Survey Interview Schedule

SURVEY OF HOMELESSNESS KEY INFORMANTS Interview Version

I am _____ and I'm with the Mental Health Division in Olympia. As we discussed on the phone, I am working on a legislatively mandated study on the prevalence of mental illness in Washington State. We have identified several groups needing further study, including the homeless. Your name was given to us by _____.

We have a series of questions about homelessness in your area we would like to ask you which we will use to guide our work. We want to be sure to do a fair assessment in each region and we understand that each area is different. We are specifically interested in your thoughts about how many homeless persons are in shelters, on the streets, and in other available alternatives in your area. We are also interested in your feedback about the number of beds available for the homeless in your area and how these beds are funded. Finally, we would like to ask you some general questions about homelessness and mental illness in your area. We anticipate that the interview will take about 20 minutes.

Did you have the opportunity to look over our page of questions and perhaps compile some numbers?

First, for what geographic area do you feel most knowledgeable about the homeless? _____
The following questions should be answered with that geographic area in mind.

About how many **publicly funded shelter beds** (funded by city, county, State, or Federal sources) would you say were *available* in your area on October 15, 2002? _____

About what percentage of those **publicly funded shelter beds** in your area would you say were *occupied* on October 15, 2002? _____

About how many **informal shelter beds** (such as those sponsored by charitable organizations or individual households) would you say were *available* in your area on October 15, 2002? _____

About what percentage of those **informal shelter beds** in your area would you say were *occupied* on October 15, 2002? _____

About how many homeless people in your area were **not occupying any kind of shelter bed** on October 15, 2002, but rather were on the streets, in parks, etc.? _____

About what percentage of all the homeless in your area (including those in formal or informal beds or who were on the streets) on October 15, 2002 were **under the age of 18**? _____

Could you tell me the sources you used for this information?

Does your organization provide shelter beds? If so, did you have the opportunity to compile the shelter bed information?

For the date October 15, 2002, could you please provide the number of shelter beds your organization had, by funding source.

FUNDING SOURCE (Please be as specific as you can.)	NUMBER OF SHELTER BEDS
1.	
2.	
3.	
4.	
TOTAL SHELTER BEDS PROVIDED BY YOUR ORGANIZATION	⇒

At 1:00 a.m. on October 15, 2002, what percentage of the shelter beds in your organization were occupied? _____

About what percentage of your beds were occupied by people *under the age of 18* at 1:00 a.m. on October 15, 2002? _____

In addition to these specific questions, we would like to ask you some more general questions on homelessness and mental illness in your area.

What is your organization's role with regard to the homeless?

What are your sources of funding?

About what percent of the homeless adults in your area would you say are Seriously Mentally Ill (defined as having a diagnosable mental, behavioral, or emotional disorder that results in functional impairment)?

What information, observations, or experiences lead you to that assessment?

About what percent of the children (under age 18) in homeless families in your area would you say are Seriously Emotionally Disturbed (defined as having a diagnosable mental, behavioral, or emotional disorder that results in functional impairment)?

What information, observations, or experiences lead you to that assessment?

Have you observed movement and shifting of the homeless population you serve?

Within the last year, where would you say the majority of homeless and their families who come to your area come *from*?

Within the last year, where would you say the majority of homeless and their families who have left your area gone *to*?

What information, observations, or experiences lead you to these assessments?

Are there unique circumstances or issues in your geographic area that we should consider? How does the homeless population in your area differ from that in the rest of the State?

Thank you for your time!

APPENDIX E

Homeless Key Informant Survey Introductory Contact Materials

SURVEY OF HOMELESSNESS KEY INFORMANTS Initial E-Mail Contact

The Mental Health Division in Olympia is working on a legislatively mandated study on the prevalence of mental illness in Washington State. We have identified several groups needing further study, including the homeless. You have been mentioned as someone who would be knowledgeable about homelessness in your area.

One of our goals is to identify the number of homeless in each mental health Regional Support Network. We have talked to the U.S. Census Bureau and the Statewide Homeless Coalition, but few counts are available.

We have a series of questions about homelessness in your area we would like to ask you which we will use to guide our work. We want to be sure to do a fair assessment in each region and we understand that each area is different. We are specifically interested in your thoughts about how many homeless persons are in shelters, on the streets, and in other available alternatives in your area. We would also like to ask you some general questions about homelessness and mental illness in your area. We anticipate that the interview will take about 20 minutes. The questions we would like to cover with you are attached. We will call you within the next week to set up a time to talk with you via telephone about these questions and issues. If you have any questions, please contact either Barbara Hawkins at (253) 582-1506 or at BarbaraBHawkins@CS.COM or Ron Jemelka at (360) 902-7501 or at jemelrp@dshs.wa.gov. We thank you in advance for your time.

SURVEY OF HOMELESSNESS KEY INFORMANTS

Initial Phone Contact to Set Up Interview Time

My name is _____ and I'm calling for the Mental Health Division in Olympia. Last week we sent you an e-mail about a legislatively mandated study on the prevalence of mental illness in Washington State. Did you receive our message and attachment?

We have identified several groups needing further study to determine the prevalence of mental illness in Washington, including the homeless. Your name was given to us by (***NAME, RSN DIRECTOR***) as someone who would be knowledgeable about homelessness in your area.

We have a series of questions about homelessness in your area we would like to ask you which we will use to guide our work. We want to be sure to do a fair assessment in each region and we understand that each area is different. We are specifically interested in your thoughts about how many homeless persons are in shelters, on the streets, and in other available alternatives in your area. We would also like to ask you some general questions about homelessness and mental illness in your area. These include the percent of homeless adults in your area you believe are seriously mentally ill, the percent of homeless children in your area you believe are seriously emotionally disturbed, your perceptions of the migration and movement of homeless persons in Washington State, and your impressions of the unique issues you face in your area with regard to the homeless.

We anticipate that the interview will take about 20 minutes. I hope that you will have the opportunity to look up the information in the attachment before our interview. Shall I re-send it?

If the time we set up is not convenient, or if you have any questions, please don't hesitate to contact me. I can be reached at [*Barbara Hawkins (253) 582-1506, BarbaraBHawkins@CS.COM; Ron Jemelka (360) 902-7501, jemelrp@dshs.wa.gov]. We thank you in advance for your time. I look forward to talking with you.*

HOMELESSNESS KEY INFORMANT SURVEY

First, for what geographic area do you feel most knowledgeable about the homeless? _____

PLEASE ANSWER THE FOLLOWING QUESTIONS WITH THAT GEOGRAPHIC AREA IN MIND.

About how many **publicly funded shelter beds** (meaning beds funded by a city or county, the State, or the Federal Government) would you say were *available* in your area on October 15, 2002? _____

About what percentage of those **publicly funded shelter beds** in your area would you say were *occupied* on October 15, 2002? _____

About how many **informal shelter beds** (such as those sponsored by charitable organizations or individual households) would you say were *available* in your area on October 15, 2002? _____

About what percentage of those **informal shelter beds** in your area would you say were *occupied* on October 15, 2002? _____

About how many homeless people in your area were **not occupying any kind of shelter bed** on October 15, 2002, but rather were on the streets, in parks, etc.? _____

About what percentage of all the homeless in your area (including those in formal or informal beds or who were on the streets) on October 15, 2002 were **under the age of 18**? _____

PLEASE ANSWER THIS SECTION ONLY IF YOUR ORGANIZATION PROVIDES HOMELESS SHELTER BEDS.

For the date October 15, 2002, could you please provide the number of shelter beds your organization had, by funding source.

FUNDING SOURCE (Please be as specific as you can.)	NUMBER OF SHELTER BEDS
1.	
2.	
3.	
4.	
TOTAL SHELTER BEDS PROVIDED BY YOUR ORGANIZATION ⇒	

At 1:00 a.m. on October 15, 2002, what percentage of the shelter beds in your organization were occupied? _____

About what percentage of your beds were occupied by people *under the age of 18* at 1:00 a.m. on October 15, 2002? _____

THANK YOU!

APPENDIX F

Jails and Prisons Literature Meta-Analysis Matrices

Prison Prevalence Study	Sample	Any	Any Mood	Major	Any Psychotic		Any Psychotic		Lifetime	Point
Proportions from Literature	Size	Disorder	Disorder	Depression	Disorder	Bipolar	Plus Bipolar	SMI	or Point?	Duration
Neighbors, Michigan prisons	379		0.29		0.10				point	current
Daniel et al. 1988	100	0.90	0.17	0.15	0.07	0.02	0.09	0.26	point	6 months
Walters et al. 1988	373							0.09	point	Current?
Herman et al. 1991	189		0.12	0.18	0.03	0.01	0.04	0.15	point	1 month
Bean et al. 1988 ohio	464	0.12	0.08	0.07	0.03	0.01	0.04		point	1month
Colorado	16,750							0.14	?	year?
Gains Center 1999										
Dvoskin & Steadman 1989	36,144							0.15	point	month
Chiles et al.	109	0.88		0.30	0.05	0.04	0.09		lifetime	lifetime
Motiuk & Porporino 1992	1,925		0.09		0.05				point	1 month
Jordan et al. 1996	805			0.11					point	6 month
Ditton 1999	14,285	0.16							lifetime	
Notes										
Neighbors, Michigan prisons	Adjust weights of 379 person sample. Are the adjusted to rep 1000 person study or they rep % of these 379									
Daniel et al. 1988	All female sample, also reported lifetime, mdd and mania are not duplicated no spmi estimate, has se									
Walters et al. 1988	SPMI = Major Disorder Subsample of severely ill invest specific diagnoses but is not general prev est, Don't know dur of PDI?									
Herman et al. 1991	Australiian, has exact frequencies, is no overlap of mood and psychotic									
Bean et al. 1988 ohio	Also reported post month point prevalence, no spmi estimate, overall count is unduplicated									
Colorado	Behavioral health headlines report exact n of spmi is 2345									
Gains Center 1999										
Dvoskin & Steadman 1989	Is sum of severe and significant psychiatric disability, has exact numbers and other definitions of psychiatric disability									
Chiles et al.	Ron is an author. No spmi estimate									
Motiuk & Porporino 1992	Canadian study, depressive disorders includes mdd, dysthymia, and bipolar, no spmi									
Jordan et al. 1996	Sample only includes women. Did not assess mania and psychosis because they expected the rates to be low and not worth the time.									
Ditton 1999	Mentally ill defined as reporting a "mental or emotional condition" or having spent the night in a treatment facility. Rates for each criteria are also available.									

Prison Prevalence Study Summary	Sample	Any	Any Mood	Major	Any Psychotic		Any Psychotic	
Estimated Frequencies	Size	Disorder	Disorder	Depression	Disorder	Bipolar	Plus Bipolar	SMI
Neighbors, Michigan prisons	379	0	109.91	0	39.42	0	0	0
Daniel et al. 1988	100	90.00	17.00	15.00	7.00	2.00	9.00	26.00
Walters et al. 1988	373	0	0	0	0	0	0	32.82
Herman et al. 1991	189	0	22.68	34.02	5.67	1.89	7.56	28.35
Bean et al. 1988 ohio	464	56.14	38.51	31.09	13.92	4.64	18.56	0
Colorado	16,750	0	0	0	0	0	0	2,345.00
Gains Center 1999		0	0	0	0	0	0	0
Dvoskin & Steadman 1989	36,144	0	0	0	0	0	0	5,421.60
Chiles et al.	109	95.92	0	32.70	5.45	4.36	9.81	0
Motiuk & Porporino 1992	1,925	0	175.18	0	88.55	0	0	0
Jordan et al. 1996	805	0	0	86.94	0	0	0	0
Ditton 1999	14,285	2,314.17	0	0	0	0	0	0
Number with Disorder	71,523	2,556.23	363.28	199.75	160.01	12.89	44.93	7,853.77
Total Study N		14,958	2,957	1,667	3,166	862	862	53,556
Total Prevalence Estimate		17.09%	12.29%	11.98%	5.05%	1.50%	5.21%	14.66%
Total Standard Error		0.308%	0.604%	0.795%	0.389%	0.413%	0.757%	0.153%

Jail Prevalence Study	Sample	Any	Any Mood	Major	Any Psychotic		Any Psychotic		Lifetime	Point
Proportions from Literature	Size	Disorder	Disorder	Depression	Disorder	Bipolar	Plus Bipolar	SMI	or Point?	Duration
King County 1991	183		0.14		0.27				current?	
Jemelka 1991 Pierce County	73			0.04	0.03	0.03	0.05	0.10	point	current?
Teplin 1990	728			0.04	0.03	0.01	0.04	0.06	point	current?
Guy et al. (1985)	486			0.01	0.12	0.03	0.13		lifetime?	lifetime?
Teplin et al. 1996	1,272			0.14	0.02	0.02	0.15		point	6 month
Ditton 1999	6,133	0.16							lifetime	
Notes										
King County 1991										
Jemelka 1991 Pierce County	Ron is the author and this estimate comes from 73 inmates interviewed by him, Specific diagnostic estimates are point,point spmi +9.6									
Teplin 1990	Have exact frequencies and standard errors									
Guy et al. (1985)	Is sum of all standardized tests administered. Does the patient fall outside of normal range on tests (e.g., mmpi roeschach)									
Teplin et al. 1996	All female sample									
Ditton 1999	Counted as mentally ill if the prisoner reported that he or she had a "mental or emotional condition" or had previously stayed overnight in a treatment facility. Rates for each criteria are also available.									

Jail Prevalence Study Summary	Sample	Any	Any Mood	Major	Any Psychotic		Any Psychotic	
Estimated Frequencies	Size	Disorder	Disorder	Depression	Disorder	Bipolar	Plus Bipolar	SMI
King County 1991	183	0	25.99	0	49.96	0	0	0
Jemelka 1991 Pierce County	73	0	0	2.99	1.97	1.97	3.94	7.01
Teplin 1990	728	0	0	28.68	19.66	10.19	29.85	46.30
Guy et al. (1985)	486	0	0	5.35	55.89	15.07	61.24	0
Teplin et al. 1996	1,272	0	0	174.26	22.90	27.98	190.80	0
Ditton 1999	6,133	999.68	0	0	0	0	0	0
Number with Disorder	8,875	999.68	25.99	211.29	150.37	55.21	95.03	244.11
Total Study N	1,470	6,133	183	2,559	2,742	2,559	1,287	2,073
Total Prevalence Estimate		16.30%	14.20%	8.26%	5.48%	2.16%	7.38%	11.78%
Total Standard Error		0.472%	2.580%	0.544%	0.435%	0.287%	0.729%	0.708%

APPENDIX G

Incarcerated Children Literature Matrix

Mental Illness in Incarcerated Children			
Study	Population Studied	Method Used	Principal Findings
Timmons-Mitchell, <i>et al.</i> , 1997; Cocozza, 1992 (cited in UW/JRA report)	Juveniles residing in correctional facilities with mental health disorders.		20%
Timmons-Mitchell, <i>et al.</i> , 1997; Cocozza, 1992 (cited in UW/JRA report)	Juveniles residing in correctional facilities with mental health disorders.		30%
Stewart, n.d	2,031 Washington youth between October 1997 and December 1998 (ages up to 21), in juvenile facilities.	Massachusetts Youth Screening Inventory (MAYSI). Not intended to provide psychiatric diagnoses; “identifies youth experiencing current mental/emotional distress or problematic behavior.” Diagnostic Mental Health Screen (DMHS); “identify youth in need of mental health consultation or referral.”	14% boys, 28% girls MAYSI “red flag” for depressed mood; 1% boys, 4% girls MAYSI “red flag” for thought disturbance; 48% overall with at least one “red flag” score (excluding traumatic experience); 36% high symptom on MAYSI
Mental Health Systems Design Committee, n.d.	Over 1,100 Washington youth in residential custody on 9/27/00. Mental Health Target Population: Current DSM-IV diagnosis (excluding sole diagnosis of conduct disorder, oppositional defiant disorder, pedophilia, paraphilia, or chemical dependency) OR is currently on psychotropics OR suicidal behavior in last 6 months.		40%
Vander Steop and Trupin, 1999	Representative sample of 270 youth admitted to detention in King County over a 2-month period; over-sampling of youth referred to mental health clinic.	Face-to-face structured interviews.	52%
Phelps, 2003	Mental Health Target Population in JRA facilities: Youth with a DSM IV Axis I diagnosis excluding sole diagnosis of conduct disorder, oppositional defiant disorder, substance abuse, pedophilia, or paraphilia.		57%
Faenza, <i>et al.</i> , 1998 (cited in Montgomery)	Youth in detention facilities with a mental health disorder.		60%

Mental Illness in Incarcerated Children			
Study	Population Studied	Method Used	Principal Findings
Teplin, <u>et al</u> , 2002	Randomly selected stratified sample of 1,829 youth, ages 10-18, arrested and detained in Cook County, IL. Stratified by age, sex, race/ethnicity, and legal status; results weighted.	DISC—assesses presence of disorders in past 6 months.	Excluding conduct disorder, 60% males, 68% females met diagnostic criteria, had diagnosis-specific impairment for one or more psychiatric disorders.

Appendix H

Results of Community Residential Key Informant Survey

SUMMARY OF RESIDENTIAL BED INVENTORY
IN KING AND GREATER COLUMBIA RSN's
10-3-02

- I. Review of the Residential Bed Study by King County Mental Health Providers
- Study represents a snapshot as of March 1, 2002, but bed inventory is always in flux.
 - The study found 1,961 residential beds in King County RSN for SMI (all types, RSN-funded, and others).
 - Of these, 598 (30.5%) were funded through a KCMHD bed rate for operations.
 - PCG study reported 579 residential beds for King County RSN, compared to 598-- a difference of 19 beds.
 - The remaining 1,363 beds represent a number of arrangements for housing costs (Seattle City and King County funds, McKinney, Section 8, other HUD (local dollars from Seattle Housing Levy often leveraged to match federal and grant options) private pay congregate care, SROs, rent subsidies etc.)
 - Occupancy by SMI for these 1,961 beds throughout King County RSN is estimated to be 90%.
 - With a few rare exceptions, these beds are not funded through Aging and Adult Services (AASA).
- II. Review of Residential Beds in Greater Columbia RSN
- Study reflects status as of 4/02/02.
 - A total of 403 beds in the RSN.
 - Of these, 203 are funded by the RSN (50.4%).
 - PCG Study reported 181 residential beds for Greater Columbia RSN, a difference of 24 beds.
 - 200 are of the same non-RSN type as listed for King County.
 - Nursing home clients served by mental health providers are a sizable number (384 served by CWCMH alone) and must be treated separately.
 - Almost all nursing home beds are funded through AASA. As with King County RSN, the other beds are not.
- III. Conclusions
- Between 30% and 50% of beds available in communities for SMI are funded by RSN's for operations.
 - The percent is lower in Seattle (30.5%), and probably for other urban areas (North Sound, Pierce, Spokane) where there may be more emphasis on housing and better opportunities for leveraging local match dollars to create housing options.
 - The percent of beds funded by the RSN's may be higher in rural RSN's (50.4% in Greater Columbia).
 - For the Prevalence Study, it was suggested we report SMI in community beds.

Appendix I
Race/Ethnicity Literature Matrix

Literature on Prevalence of Mental Illness in Minorities										
Study	Age group	N	Point, lifetime?	SPMI	SCHIZO	BIPOLAR	MDD	Any Mood	Other	Other What
Vega et al. (1998)	adults	3,012	lifetime			2		13.8	35.7	any disorder
Ortega et al. (2000)	15-54	484	lifetime							
Roberts & Chen (1995)	children	1,297	?					17.7	25.2	suicidal ideation
Takeuchi et al. (1998)	18-65	1,747	12 month				3.4		0.9	dysthymia
Hinton et al. (1998)	18+(mean)	3,401	one week				8.8			
Nazroo (1998)	adults	?	one week depression, year psychotic		1.40		6			
Zhang & Snowden (1999)	18-64	4,301	lifetime		1.7	0.6	2.9			
	18-64	1,433	lifetime		0.5	0.3	4.3			
	18-64	242	lifetime		0.2	0.5	3.4			
Johns et al. (2002)	>16	1,576	year		0.2					
	>16	3,228	year		0.2					
Ezpeleta et al. (2001)	9 to 18	1,819	lifetime	31.6						
Beals et al. (1997)	14 to 16	109	6 month				4.7			
Study										
Cultural Group										
Latino										
Vega et al. (1998)	Mexican Americans in Fresno, CA									
Ortega et al. (2000)	Mexican Americans, Puerto Ricans, and other Hispanic									
Roberts & Chen (1995)	Mexican American youth									
Asian-Americans										
Takeuchi et al. (1998)	Chinese Americans in LA									
Hinton et al. (1998)	Vietnamese-American men									
Caribbeans in Britian										
Nazroo (1998)	Caribbean immigrants in Britain									
Overall										
Zhang & Snowden (1999)	Black									
	Hispanic									
	Asian									
Johns et al. (2002)	Caribbeans living in Britain									
	South Asians living in Britain									
Ezpeleta et al. (2001)	Mostly African American and Native American children									
Beals et al. (1997)	Native Americans from a Northern Plains tribe.									
Study										
Notes										
Vega et al. (1998)	A large well designed study of Mexican American adults. No prevalence rates for psychotic disorders.									
Ortega et al. (2000)	No prevalence rates reported but logistic regression demonstrated that Latinos are at a lower risk of psychological/psychiatric									

	disorders in the NCS dataset.
Roberts & Chen (1995)	Depression is cutoff score of 31 or above.
Takeuchi et al. (1998)	Results of the Chinese American psychiatric epidemiological study.
Hinton et al. (1998)	Used a Vietnamese HSC-D with cutoff to assess depression. Conducted as phone survey, response rates of 85 to 96%. Unemployed, disabled, poor, and non-English proficient men more likely to be depressed.
Nazroo (1998)	Schizophrenia is defined as psychosis in this study. However, no information was provided on sample size.
Zhang & Snowden (1999)	Data from the household ECA study.
	Data from the household ECA study.
	Data from the household ECA study.
Johns et al. (2002)	Schizophrenia is defined as psychotic disorder. Overall, minorities had a lower rate of psychotic disorder than whites, but higher rates of psychotic symptoms.
	Schizophrenia is defined as psychotic disorder. Overall, minorities had a lower rate of psychotic disorder than whites, but higher rates of psychotic symptoms.
Ezpeleta et al. (2001)	SPMI is defined as any disability or impairment due to a diagnosis, is a subsample of children from the Great Smoky Mountain Study. Minority children at a high risk OR = 1.4 than white children. However group differences were non-significant.
Beals et al. (1997)	Included only those living on their home reservation. Used the DISC.

APPENDIX J

Refugee Literature Matrix

Mental Illness in Refugee Populations			
Study	Population Studied	Method Used	Principal Findings
Allden et al. (1996)	104 Burmese political dissidents who had fled to Thailand after a 1988 uprising and who were registered with the UN High Commissioner as persons of concern.	-Cumulative trauma score -Hopkins Symptom Checklist-25 (HSC-25) -Harvard Trauma Questionnaire (HTQ)	-Depression 38% -PTSD 23%
Kinzie et al. (1990)	All 322 patients at a psychiatric clinic for Indochinese refugees in Oregon in 1988.	-DSM-III-R Checklist	-Depression 81% -PTSD (P*) 70% -PTSD (LT*) 75%
Mollica et al. (1993)	1000 households randomly selected in Site 2, the largest Khmer camp, housing Cambodians living on the Thai-Cambodia border in 1990. One adult randomly selected from each household (n=993).	-An instrument developed by the researchers using parts of the HSC-25, HTQ, and MOSSF-20.	-Depression 55% -PTSD 15%
Holtz (1998)	Adult Tibetan refugees ages 20-30, living in India (N=47)	Depression and anxiety scores based upon elevations on measure of depression anxiety, no PTSD questions because no fit with Tibetan culture.	-Depression 14.3% -Anxiety 41.4% Author notes more problems among those who had been tortured.
Williams & Westermayer (1993)	Southeast Asian adolescents in U.S. ages 12-20 (N=28)	Review of patients at University of Minnesota Hospitals. Very poorly done and outdated diagnostic categories.	-Schizophrenia 21.4% -Depression 14.3%
Mghir et al. (1995)	Adolescent Afghan refugees living in the United States. Ages 12 to 24 (N=34).		-Depression 32.35% -PTSD 14.71%
Shrestha et al. (1998)	Bhutanese refugees living in Nepal. Compared 526 tortured to 526 untortured refugees..		-PTSD 8.55%
Mollica et al. (1999)	Cross-sectional survey conducted in 1996 of Bosnian refugee adults living in a camp established by the Croatian government near city of Varazdin. One adult aged 18 or older randomly selected from each of 573 camp families (n=534).	-HSC-25 -HTQ -Medical Outcomes Study Short-Form 20 (MOSSF-20) -Physical functioning scale based on WHO criteria -Self-report of socioeconomic activity, levels of energy, and perceived health status.	-Depression 39.2% -PTSD 26.3% -PTSD + Depression 20.6%
Kozaric-Kovacic et al. (1993)	Adult Croatian army, POWs (N=47)	Uses DSM-IV diagnostic criteria	-PTSD 34%

Mental Illness in Refugee Populations			
Study	Population Studied	Method Used	Principal Findings
Krupinski et al. (1973)	Eastern European refugees from WWII living in Australia (N=177)	Very old, but comprehensive, outdated diagnoses	-Schizophrenia 2.85% -Depression 1.88%
Protes et al (1992)	Adult Cuban Refugees living in South Florida (N=452)	Uses Diagnostic Interview Schedule (DIS).	-Schizophrenia 3.8% -Depression 8.3%
Protes et al (1992)	Adult Haitian refugees living in South Florida (N=500)	Uses Diagnostic Interview Schedule(DIS)	-Schizophrenia 0.6% -Depression 4.2%
* P= Point Prevalence; LT= Lifetime Prevalence			

APPENDIX K

Medicaid Eligibles Calculation

Mental Health Division's TXIX PROGRAM AND MATCH CODES

Program	Match	Category	Definition	Last Date Eligible	Date Calc
A	1	CN	SSI grandfathered grant recipient or receiving additional reqs (or in institution w/part of CPI pd by state)	Current	6/30/03
A	2	CN	Essential person (grant case converted in 1974)	Current	6/30/03
A	A	MN	Medically Needy - Spenddown	Current	6/30/03
A	B	MN	Medically Needy - No Spenddown	Current	6/30/03
A	C	CN	Categorically Needy - Income at or below CNIL (includes SSI grant)	Current	6/30/03
A	D	CN	QMB only, not CN/MN	07/2002	8/5/03
A	E	CN	Expanded Specified Low-Income Medicare Beneficiary (SLMB)	NotAvl	9/19/03
A	H	MN	Institutionalized Medically Needy - income at or over SIL	Current	6/30/03
A	J	CN	Institutionalized Categorically Needy - Income under SIL	Current	6/30/03
A	K	MN	Specified Low-Income Medicare Beneficiary (SLMB)	07/2002	9/19/03
A	L	MN		InActv	9/19/03
A	M	CN	CN SSI Foster Care	InActv	9/19/03
A	N	CN	Institutionalized Categorically Needy - Income at or below CNIL - CPI not paid by state	Current	6/30/03
A	S	CN	Categorically Needy - Income above CNIL but mandatory CN	Current	6/30/03
A	U	CN	Aged Non SSI	Current	6/30/03
B	1	Disabled	SSI grandfathered grant recipient or receiving additional reqs (or in institution w/part of CPI pd by state)	Current	6/30/03
B	A	Disabled	Medically Needy - Spenddown	Current	6/30/03
B	B	Disabled	Medically Needy - No Spenddown	Current	6/30/03
B	C	Disabled	Categorically Needy - Income at or below CNIL (includes SSI grant)	Current	6/30/03
B	D	Disabled	QMB only, not CN/MN	07/2002	8/5/03
B	E	Disabled	Expanded Specified Low-Income Medicare Beneficiary (SLMB)	NotAvl	9/19/03
B	H	Disabled	Institutionalized Med Needy - Income at or over SIL	07/2002	6/30/03
B	J	Disabled	Institutionalized Categorically Needy - Income under SIL	Current	6/30/03
B	K	Disabled	Specified Low-Income Medicare Beneficiary (SLMB)	07/2002	9/19/03
B	M	Disabled	CN - SSI Foster Care	InActv	9/19/03
B	N	Disabled	Institutionalized Categorically Needy - Income at or below CNIL - CPI not paid by state	Current	6/30/03
B	S	Disabled	Categorically Needy - Income above CNIL but mandatory CN	Current	6/30/03
B	U	Disabled	Blind Non SSI	02/2002	6/30/03
B	X	Disabled	Health Care for Workers w/Disability - Employed	Current	6/30/03
B	Y	Disabled	Health Care for Workers w/Disability - Medically Improved	Current	6/30/03
C	1	CN	Needy relative	Current	6/30/03
C	2	CN	Eligible Child	Current	6/30/03
C	A	MN	Medically Needy - Spenddown	Current	6/30/03
C	B	MN	Medically Needy - No Spenddown	Current	6/30/03
C	C	CN	Categorically Needy - Income at or below CNIL (not eligible for a grant)	Current	6/30/03

C	D		QMB only	07/2002	6/30/03
C	H	MN	Institutionalized Med Needy	07/2002	6/30/03
C	L	MN	Institutionalized Med Needy with income between MNIL and CNIL	01/2003	6/30/03
C	N	CN	Institutionalized Categorically Needy - Income at or below CNIL	03/2002	6/30/03
C	Q	CN	TANF Family Reinstatement	05/2002	6/30/03
C	S	CN	Suspended cases	Current	6/30/03
D	E	CN	Foster Care - Non-Title IV-E	Current	6/30/03
D	I	CN	Foster Care - Title IV-E	Current	6/30/03
D	M	CN	SSI and Foster Care - Non-Title IV-E	Current	6/30/03
D	O	CN	Foster Care - Title IV-E and adoption assistance in-state	Current	6/30/03
D	P	CN	SSI and Foster Care - Title IV-E	Current	6/30/03
D	Q	CN	SSI and Foster Care	Current	6/30/03
D	T	CN	Adoption Support - state funds only	Current	6/30/03
D	V	CN	SSI and Foster Care - Title IV-E and adoption assistance in-state	Current	6/30/03
D	X	CN	Juvenile Rehabilitation Non-SSI	Current	6/30/03
D	Y	CN	SSI and Adoption Support - state funds only	Current	6/30/03
D	Z	CN	Juvenile Rehabilitation - SSI	Current	6/30/03
E	1	CN	Needy Relative	Current	6/30/03
E	2	CN	Eligible Child	06/2003	6/30/03
E	C	CN	Categorically Needy - Income at or below CNIL (not eligible for a grant)	Current	6/30/03
E	L	MN	Institutionalized Med Needy with income between MNIL and CNIL	07/2002	6/30/03
E	Q	CN	TANF Family Reinstatement	07/2002	6/30/03
E	S	CN	Suspend cases	Current	6/30/03
G	M		Family Planning - No other medical available.	NotAvl	9/19/03
G	T		Family Planning - No other medical available.	NotAvl	9/10/03
H	A	MN	Medically Needy - Spenddown	Current	6/30/03
H	C	CN	Age Less then 19 with income at or below CNIL (not eligible for a grant)	Current	6/30/03
H	L	MN	Institutionalized Med Needy with income between MNIL and CNIL	12/2002	6/30/03
H	M	Exp Kids	< 1 YR income between 133- 200% FPL, 1-5YR between 133-200% FPL, 6-18 between 100-200% FPL	Current	6/30/03
H	N	CN	Institutionalized Categorically Needy - Income at or below CNIL	Current	6/30/03
H	S	CN	< 1YR income above CNIL & <= 185% FPL, 6-18YR income above CNIL & <- 100% FPL	Current	6/30/03
H	T	CN	Age 1-5 - income above CNIL and <= 133% FPL	Current	6/30/03
H	U	CN	Institutionalized 18-21 (in shelter code 5)	Current	6/30/03
J	S	CN	Cervical and Breast Cancer Women	Current	6/30/03
K	1	CN	Federal Emergency Assistance - no medical	07/2002	6/30/03
K	2	CN	Federal Emergency Assistance - no medical	07/2002	6/30/03
M	G		Medically Indigent	NotAvl	9/10/03
M	P		Institutionalized Clients meeting MI criteria	NotAvl	9/10/03
M	R		Detox only	NotAvl	9/19/03
M	T			NotAvl	9/19/03
N	C			InActv	9/19/03
N	S	CHIP	CHIP - Children Health Insurance Program	Current	6/30/03
O	C			InActv	9/19/03
P	1	Disabled	SSI grandfathered grant recipient or receiving additional reqs (or in institution w/part of CPI pd by state)	Current	6/30/03

P	2	Disabled	Essential person (gran case converted in 1974)	Current	6/30/03
P	A	Disabled	Medically Needy - Spenddown	Current	6/30/03
P	B	Disabled	Medically Needy - No Spenddown	Current	6/30/03
P	C	Disabled	Categorically Needy - Income at or below CNIL (includes SSI grant)	Current	6/30/03
P	D	Disabled	QMB only, not CN/MN	07/2002	8/5/03
P	E	Disabled	Expanded Specified Low-Income Medicare Beneficiary (SLMB)	NotAvl	9/19/03
P	H	Disabled	Institutionalized Medically Needy - Income at or over SIL	Current	6/30/03
P	J	Disabled	Institutionalized Categorically Needy - Income under SIL	Current	6/30/03
P	K	Disabled	Specified Low-income Medicare Beneficiary (SLMB)	07/2002	9/19/03
P	M	Disabled		InActv	9/19/03
P	N	Disabled	Institutionalized Categorically Needy - Income at or below CNIL - CPI not paid by state	Current	6/30/03
P	S	Disabled	Categorically Needy - Income above CNIL but mandatory CN	Current	6/30/03
P	T	Disabled	Disabled Adopt Spt Med Pgm	InActv	9/19/03
P	U	Disabled	Disabled Non SSI	Current	6/30/03
P	W	Disabled	Person Meeting Qualified Disabled Working Individual (QDWI) criteria only, not CN/MN	NotAvl	9/30/03
P	X	Disabled	Health Care for worker with Dis-Employed	Current	6/30/03
P	Y	Disabled	Health Care for worker with Dis-Medically	Current	6/30/03
Q	U			NotAvl	9/10/03
R	1	CN	Needy relative or adult	Current	6/30/03
R	2	CN	Eligible Child	Current	6/30/03
R	A	MN	Medically Needy - Spenddown	Current	6/30/03
R	C	CN	Categorically Needy - Income at or below CNIL not eligible for a grant	Current	6/30/03
R	I		Refugee 4E Foster Care	InActv	9/19/03
R	S	CN	Refugee suspend case	Current	6/30/03
S	A	CN	Medically Needy - Spenddown	Current	6/30/03
S	C	CN	Categorically Needy - Income at or below CNIL (not eligible for a grant)	Current	6/30/03
S	T	CN	Categorically Needy pg women - income greater than CNIL; not more than 185% of FPL	Current	6/30/03
T	I	CN	SSI grant recipient in institution w/part of CPI pd by state	Current	6/30/03
T	H	CN	Institutionalized Medically Needy - income at or over SIL	Current	6/30/03
T	J	CN	CN-Related to SSI	Current	6/30/03
T	M	CN	CN-SSI Foster Care	07/2002	6/30/03
T	N	CN	Institutionalized SSI mbeneficiary - CPI not paid by state	Current	6/30/03
U	H		Incapacitated 18-year-olds (Eligible for federal match)	NotAvl	9/10/03
U	U		All other GAU Cases	NotAvl	9/10/03
V	Z		State funded - undocumented alien children	NotAvl	9/19/03
W	R		Clients eligible for ADATSA medical only	NotAvl	9/10/03
W	U		Clients receiving assistance on the treatment of shelter track	NotAvl	9/10/03
X	U	Disabled	All other Presumptive SSI cases	Current	6/30/03