State of Washington
Joint Legislative Audit and Review Committee (JLARC)

DSHS Mental Illness Prevalence Study: Follow-up to JLARC's 2000 Mental Health System Performance Audit

Report 04-1

January 29, 2004

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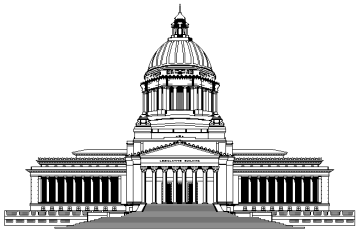
JLARC staff, under the direction of the Committee and the Legislative Auditor, conduct performance audits, program evaluations, sunset reviews, and other policy and fiscal studies. These studies assess the efficiency and effectiveness of agency operations, impacts and outcomes of state programs, and levels of compliance with legislative direction and intent. The Committee makes recommendations to improve state government performance and to correct problems it identifies. The Committee also follows up on these recommendations to determine how they have been implemented. JLARC has, in recent years, received national recognition for a number of its major studies.

DSHS MENTAL ILLNESS PREVALENCE STUDY FOLLOW-UP

REPORT 04-1

FOLLOW-UP REPORT

JANUARY 29, 2004



STATE OF WASHINGTON

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Summary

DSHS's Mental Health Division has just completed a legislatively mandated study on the prevalence of serious mental illness within the state. Prevalence of mental illness in the different regions of Washington is significant because it is one of the factors that must be considered when allocating nearly $750 million in biennial funding to the state's Regional Support Networks. The study updates an earlier prevalence study known as the PEMINS study. JLARC's 2000 audit found a statistical relationship between the percentage of seriously mentally ill persons in need of publicly funded mental health services in a Regional Support Network (RSN) – as estimated in the earlier study – and the percentage of Medicaid-eligible persons in an RSN. The updated study indicates a slightly less strong relationship between those needing publicly funded mental health services and those eligible for state medical assistance programs. However, considerations of how mental health funding is apportioned to regions across the state should reflect **all** funding streams, including Medicaid funding, other federal resources, and all state resources for both in-patient hospitalizations and community-based services for mentally ill individuals.

Introduction

The Mental Health Division (MHD) of the Department of Social and Health Services has just completed a legislatively mandated study on the prevalence of mental illness within the state. The mandate followed a recommendation in JLARC's 2000 performance audit of the state's public mental health system. Prevalence of mental illness in the different regions of Washington is significant because it is one of the factors considered when allocating nearly $750 million in biennial funding to the state's Regional Support Networks (RSNs). This brief JLARC staff report reviews pertinent background information, highlights the study process and key results, and discusses implications related to funding. The Executive Summary of the DSHS report is included as Appendix 1

Background

JLARC concluded in its December 2000 performance audit of the state's public mental health system that the means for allocating funds to the state's RSNs was inequitable, resulting in wide disparities in the amount of resources made available for community mental health services.

Related to this conclusion, JLARC also found:

- One of several problems with DSHS's funding allocation method was its basis, in part, on a nearly 20-year-old estimate of the prevalence of mental illness within Washington – an estimate for which supporting documentation no longer existed.

- A newer 1998 estimate of the prevalence of mental illness in the state was available from the PEMINS (*Prevalence Estimation of Mental Illness and Need for Services*) study. Dr. Charles Holzer III of the University of Texas, conducted that study on behalf of DSHS through a telephone survey of 7,000 Washington State residents.[1] While the study was well regarded because of its breadth, an acknowledged shortcoming was that some groups – such as the homeless – were left out because of the reliance on telephone surveys to gather data. JLARC concluded in 2000 that this shortcoming likely did not affect one RSN substantially more than another, and therefore it still provided a good estimate of the relative differences in the need for publicly funded mental health services among different regions of the state.

- There was a strong statistical association between the proportion of people needing public mental health services within each RSN, as estimated by the PEMINS study, and the proportion of Medicaid-eligible persons within each RSN. Thus the latter was found to be a good proxy measure for the former. Also, data on those eligible for Medicaid can be updated annually without the costs of carrying out a specialized one-time study.

JLARC recommended in 2000 that the Mental Health Division: 1) substantially reduce the disparity in funding to the RSNs per Medicaid-eligible person (Recommendation 11c), and 2) conduct periodic studies of the regional prevalence of mental illness to determine whether the statistical association between the percentage of Medicaid-eligible people and the percentage needing publicly funded mental health services remains intact (Recommendation 12).

Subsequent to JLARC's audit, the Legislature took two related actions as part of its 2001-03 operating budget (Chapter 7, Laws of 01, E2). First, it authorized DSHS to implement a new formula for allocating resources among the RSNs, to be phased in over a six year period. The changes made included placing greater emphasis on the number of persons in each RSN eligible for Medicaid and other medical assistance

[1] Trained clinicians conducted follow-up interviews with those whose initial responses indicated the potential for psychotic disorders.

programs. Second, the Legislature also appropriated $500,000 for a study of the prevalence of mental illness among the state's RSNs, to include an examination of how prevalence estimates compare to the number of persons enrolled in medical assistance programs. In conducting the study, the Department was directed to consult both with JLARC and various stakeholder groups. JLARC was also directed to review the results of the new study. This report constitutes that review.

The New Prevalence Study

Process and Methodology: The Mental Health Division contracted with the *Washington Institute for Mental Illness and Research* to conduct this new prevalence study; Dr. Ron Jemelka coordinated the effort. A Prevalence Advisory Committee (PAC), including RSN, provider, consumer, and research representation, guided the study process and provided advisory oversight. JLARC staff also participated in an observational capacity. An "Expert Panel," consisting of leading national researchers in mental illness prevalence studies, was also formed to serve in a consultative capacity as the study progressed.

The Prevalence Advisory Committee agreed that the original PEMINS study was a state-of-the-art effort and agreed to carry out the new study by: 1) updating the original PEMINS study to reflect 2000 census data, and 2) developing estimates of mental illness among groups either excluded or deemed to have been undercounted in the original study. Such groups included children, the homeless, and those living in institutional and other group quarters. Early on the PAC also established two key assumptions related to the overall study:

- While the original PEMINS study provided estimates according to 13 different models of mental health need, the PAC decided that the model that should be focused on for the new study was what was referred to as the ***medium-band*** definition of mental health need. Broadly, this **refers to persons who have a major mental disorder and meet at least one of the following four criteria**: functional limitation that limits major life activities; use or desire to use mental health services; considered a danger to self or others; or dependence (i.e., inability to support one's self or provide for one's own care).

- To examine how prevalence rates compare to the number of Medicaid-eligibles,[2] the PAC decided that the study should report estimates of both the total prevalence of mental illness within areas of the state, as well as the prevalence among those living in households at or below 200 percent of the federal poverty

[2] The budgetary language mandating the study directed that it examine how estimates of the prevalence of mental illness relate to the number of persons "enrolled in medical assistance programs" in each RSN. In conducting the study, study staff (and JLARC staff) interpreted the language as referring to the number of "Medicaid eligibles," which was the measure referenced in the 2000 JLARC audit. In fact, the study language is slightly broader in that in addition to approximately 830,000 Medicaid eligible clients, it also includes approximately 12,000 individuals who are eligible for the state's GA-U and Medically Indigent Programs. Study staff have re-run all appropriate calculations to include these additional individuals, and those updated calculations are reflected in this report.

level. This was the measure used in the original PEMINS study as a proxy for those needing publicly funded mental health services.

Study Results: The study's estimate of the number of cases of serious mental illness, both among the state's total population as well as those in need of publicly funded services, is shown below in comparison to the original 1998 estimate.

Estimated Cases of Serious Mental Illness Within Washington State
Updated Study Compared to Original Estimate

	Estimated Serious Mental Illness	
	Among Total Population	**Among Those Needing Publicly Funded Services[3]**
Original PEMINS Study		
Adults in households	157,070	**60,332**
Updated Study		
Adults in households	165,154	**60,072**
Plus estimates for:		
>Children	105,969	**63,899**
>Homeless	8,104	**8,104**
>Other Groups Excluded From Original Study	16,657	**16,657**
TOTAL	295,884	**148,732**

Two things stand out in the above table. First, by including estimates for groups either excluded or underrepresented in the original PEMINS study, the new study adds substantially to the estimated prevalence of serious mental illness within the state. Second, and perhaps more notably, there is a substantial difference in the estimates for serious mental illness in total, and serious mental illness among those considered to be in need of publicly funded mental health services. Moreover, the two estimates are not necessarily distributed similarly, or proportionately, among the state's RSNs. The table on the following page shows each RSN's percentage of the state total for five separate measures: population, total serious mental illness, serious mental illness among those in need of publicly funded mental health services, Medical Assistance eligibles, and Community Mental Health funding.

As can be seen, in some RSNs there is a marked difference in the percentage share of serious mental illness in total, and serious mental illness among those in need of publicly funded mental health services. The greatest difference is in the state's largest RSN, King County, which has percentage shares of 29.7 and 26.6 percent respectively. However, this difference is much less than the difference estimated in the original 1998 PEMINS study: 30.4 percent for total and 21.6 percent for those needing publicly funded

[3] Included for the original study are adults living in households below 200 percent of the federal poverty level. Included for the updated study are adults living in households below 200 percent of the federal poverty level, children living in households below 250 percent of the federal poverty level, and all those in the homeless and other group estimates.

services. The increase in King County's estimated share of the seriously mentally ill in need of publicly funded mental health services is likely attributable to the new study's inclusion of mental illness among the homeless and other groups that were excluded from the original study.

Regional Support Networks Percentage of Statewide Total for Five Separate Measures

Regional Support Network	2000 Total Population	Estimated Serious Mental Illness		Medical Assistance Eligibles	Community MH Funding Allocation*
		In Total	Needing Publicly Funded Services		
King	29.5%	29.7%	**26.6%**	21.4%	**24.1%**
North Sound	16.3%	15.8%	**15.1%**	13.9%	**13.5%**
Pierce	11.9%	12.2%	**12.5%**	12.2%	**13.4%**
Greater Columbia	10.2%	10.0%	**11.4%**	14.9%	**11.7%**
Spokane	7.1%	7.5%	**8.4%**	8.9%	**9.2%**
Clark	5.9%	5.9%	**5.8%**	6.1%	**5.3%**
Peninsula	5.5%	5.3%	**5.3%**	4.7%	**5.4%**
Thurston/Mason	4.4%	4.2%	**4.2%**	4.0%	**4.2%**
North Central	2.2%	2.3%	**2.8%**	3.9%	**3.3%**
Chelan-Douglas	1.7%	1.7%	**2.0%**	2.1%	**1.7%**
Timberlands	1.6%	1.5%	**1.7%**	2.2%	**2.3%**
Southwest	1.6%	1.6%	**1.7%**	2.1%	**2.3%**
Northeast	1.2%	1.2%	**1.3%**	1.8%	**1.8%**
Grays Harbor	1.1%	1.2%	**1.3%**	1.7%	**1.9%**
TOTAL	100.0%	100.0%	**100.0%**	100.0%	**100.0%**

* Based on funding model projections and assuming full model implementation. Includes Medicaid, Non-Medicaid, Expanded Community Service (ECS) and Federal Block Grant funding.

The table above also shows how the RSNs' percentages of the seriously mentally ill compare to their percentage of medical assistance program eligibles within the state. This comparison is significant because, as noted previously, JLARC's 2000 performance audit of the mental health system concluded (based on the findings of the original PEMINS study) that a similar measure – the number of Medicaid-eligibles in an RSN – served as a good proxy for the number of people needing publicly funded mental health services. The Legislature subsequently authorized DSHS to begin phasing in a new system for allocating funds to the RSNs that placed greater emphasis on the number of persons eligible for Medicaid and other medical assistance programs. Findings from the new prevalence study, however, indicate the relationship between the estimated number of people needing publicly funded services and the number of medical assistance program eligibles has lessened slightly. As can be seen above, there are two RSNs – King County and Greater Columbia – where there is a noticeable difference between the percentage of medical assistance program eligibles and those estimated to need publicly funded mental health services.

Finally, though not part of the new prevalence study, the preceding table also shows what each RSN's proportion of community mental health services funding would be under the current funding system *if* that system were fully implemented (which it is not scheduled to be until FY 2007). Although a portion of the new system is based on the number of persons eligible for Medicaid and other medical assistance programs in an RSN, many other factors are also considered and thus there is not a direct one-to-one relationship between funding and the number of those eligible. The table shows there is **less** of a discrepancy between funding and need for public mental health services, than there is between medical assistance program eligibility and need for public services.

JLARC's Assessment

Our conclusion is that the current study is a good faith and commendable attempt to estimate both the overall prevalence of serious mental illness within the state, as well as the prevalence among those in need of **publicly funded mental health services**. Both 2000 census data and estimates for targeted populations – including the homeless, children and other groups underrepresented in the original study – have been included in this update.

Late in the study process, after initial draft results had been distributed, some members of the Prevalence Advisory Committee (PAC) raised concerns over various methodological and definitional issues; issues that went back to the original PEMINS study. The primary concern related to the appropriateness of one of the four secondary variables – "dependence" – that could be met in order to be considered seriously mentally ill.[4] At our request, the author of the original PEMINS study re-ran the original data to determine the extent to which this variable impacted the overall study results. His conclusion was that "removing the dependence criterion makes little difference in the direct survey prevalence and correspondingly would make little difference in the county level estimates."

There are some other lesser concerns regarding some of the study findings. As two examples:

- Many PAC members questioned what seemed to be a comparatively large estimate of serious mental illness among the homeless in Spokane County.

- JLARC staff believe the study may overestimate the number of children in need of publicly funded mental health services. This is because of the PAC's decision to include in its estimate children living in households under 250 percent of the federal poverty level, rather than limiting it to 200 percent as specified under current state guidelines.

[4] To meet the definition of "serious mental illness," one had to have a major mental disorder *and* meet one of four additional criteria: functional limitation, use or desire to use mental health services, danger to self or others, or dependence.

Given the scope of the study it is not surprising that there are some findings that some might take issue with. JLARC members and other legislators may hear about these or possibly even other issues. From JLARC staff's perspective, however, these concerns are relatively minor and do not take away from our overall assessment of the study being a quality effort – given constraints of cost and overall feasibility.

Implications for Funding of Community Mental Health Services

The 2000 JLARC audit found a strong association between the estimated need for publicly funded mental services and the percentage of Medicaid-eligible people. The new prevalence study indicates a slightly less strong relationship between those needing publicly funded services and the number eligible for state medical programs. This is most apparent in two of the state's RSNs. In light of this, there may be some calls for the Legislature to modify the current funding structure.

Both the current and original PEMINS study show that there is a substantial difference between the estimated prevalence of serious mental illness *in total*, and the prevalence among those *in need of publicly funded mental health services*. The Legislature should take this into consideration in considering any changes to the funding allocation method. Moreover, considerations of how state mental health funding is apportioned to regions across the state should reflect **all** funding streams, including Medicaid funding, other federal resources, and all state resources for both in-patient hospitalizations and community-based services for mentally ill individuals.

Appendix 1

Washington State
Department of Social
& Health Services

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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Or by calling 1-888-713-6010

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, the 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.

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.

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 2001and 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-1data file, 100% data, applying a rate of 7%. See Chapter 3 for description of how estimates were derived.

Table ES.2
Comparison of Estimates

RSN	Estimated SMI (Households-Race Neutral) + MiniStudies[1]	SMI Estimates from Blueprints	PEMINS SMI <200/250% FPL + MiniStudies[1]	# 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**

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.

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 heath 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 (WANAHS), 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.