Washington State
Institute for
Public Policy

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DO PATIENTS ON ATYPICAL ANTIPSYCHOTIC MEDICATIONS HAVE BETTER OUTCOMES?

Introduction

For many persons with schizophrenia and other psychiatric and neurological disorders, new medications called "atypical antipsychotics" are more effective than traditional medications.[1] However, access to atypical antipsychotic medications can be problematic for persons without insurance and/or low income.[2]

To address these issues, the 2000 Washington State Legislature passed Second Substitute House Bill 2663 (2SHB 2663) providing for the distribution of atypical antipsychotic medications to underserved populations presenting a risk of harm to themselves and the community. The Legislature appropriated $1 million for the program. Two sites, one in Pierce County and one in King County, were selected to receive funding through a Department of Social and Health Services (DSHS) competitive bidding process.

To assess the effectiveness of this legislation, an outcome study was assigned to the Washington State Institute for Public Policy (Institute). A preliminary Institute report described legislative program requirements, program characteristics, participant profiles, and access and funding results.[3] This report describes the Pierce County Regional Support Network and Harborview Mental Health Services programs and participants. We focus on participant outcomes one year after program enrollment, including participants' criminal recidivism, use of hospital and other mental health resources, and employment.[4]

Summary

The 2000 Legislature provided for the distribution of "atypical antipsychotic" medications to underserved populations with psychiatric disorders. Pierce County Regional Support Network (Pierce RSN) and Harborview Mental Health Services (HMHS) were participants in this pilot program, serving 282 and 192 clients, respectively.

Both programs fulfilled the legislative requirements, serving a severely mentally ill population with few resources. The programs provided temporary access to medications, helping to fill the funding gap between the time a low-income person needs medication until a Medicaid coupon or an alternative medication funding source becomes available. Many participants transitioned onto Medicaid: approximately 40 percent of participants in both programs were Medicaid eligible in state records six months after the program ended. Nearly two-thirds of program participants stayed in the program for no more than two months.

The only feasible research design was a comparison of participants before and after the program. This design does not allow scientific conclusions about a program's effectiveness. Comparing the year prior to and after program entry, Pierce RSN participants showed fewer felony and misdemeanor criminal convictions and psychiatric hospital admissions and increased participation in outpatient services; no improvement in employment status was found. HMHS participants had increased participation in outpatient services, showed slightly fewer felony convictions, but no improvement in misdemeanor convictions, psychiatric hospitalizations, or employment status.

[1] L.L. Voruganti, L. Cortese, L. Oyewumi, Z. Cernovsky, S. Zirul, and A. Awad. 2000. "Comparative Evaluation of Conventional and Novel Antipsychotic Drugs With Reference to Their Subjective Tolerability, Side-Effect Profile, and Impact on Quality of Life." *Schizophrenia Research* 43: 135-145.

[2] See Appendix A, Polly Phipps, Bill Luchansky, and Mina Halpern. 2002. *Access to Atypical Antipsychotic Medications: Program Characteristics and Participant Profiles.* Olympia: Washington State Institute for Public Policy.

[3] Phipps et al., *Access to Atypical Antipsychotic Medications*.

[4] Ibid., Appendix B has a description of data sources.

Part I: Pierce RSN Program

Pierce Regional Support Network (Pierce RSN) manages Pierce County mental health services. Pierce RSN works closely with Western State Hospital and operates Puget Sound Hospital and a jail mental health service. Pierce RSN subcontracts with community mental health agencies that evaluate patients' needs for RSN-supported mental health and community services and provide case management, including linkages to services and advocacy for financial benefits.

Pierce RSN enrolled 282 individuals in its program from November 2000 through April 2002.[5] DSHS billing invoices show program costs at approximately $230,000: 55 percent of funds were spent on atypical antipsychotic medications, 37 percent on other psychotropic medications, and 8 percent on administration and laboratory testing.

To promote access to the medications for the population specified in the legislation (those underserved who present risk of harm to themselves and the community), Pierce RSN prioritized its program to serve individuals in three locations: Puget Sound Hospital; core mental health agencies (including Good Samaritan Behavioral Health, Comprehensive Mental Health Center, and Greater Lakes Mental Health Center), and Pierce County Detention and Correction Facilities.

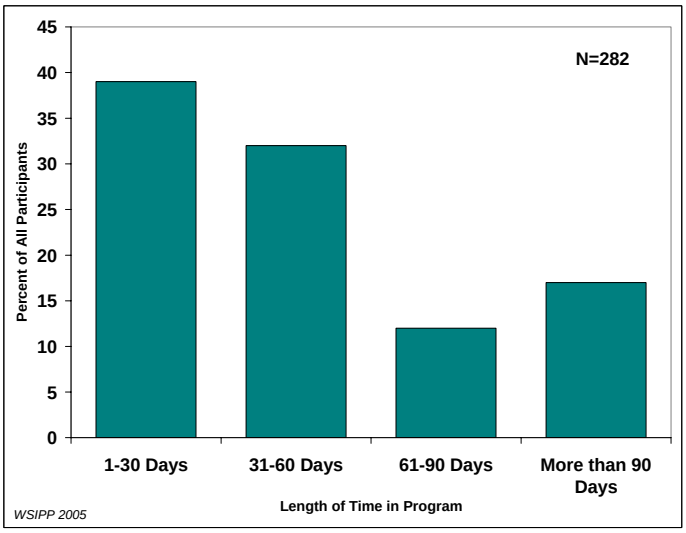
Exhibit 1 shows that most participants entered the program through core mental health agencies with a smaller proportion entering after involuntary hospital civil commitment or through the jail. Nearly all participants were eligible for the program because they lacked medical insurance.

Exhibit 1
Eligibility and Priority Population Status of Pierce RSN Participants

	N=282	%
Priority Population		
Agency Referral	200	71%
Involuntary Civil Commitment	44	16%
Criminal Justice Referral	38	13%
Eligibility		
No Insurance	278	99%
Cost Prohibitive Insurance Co-Payment	4	1%

One legislative goal was to provide temporary access to medication until an individual obtained coverage or had financial capacity to pay. As seen in Exhibit 2, most participants received medications through the program for a short period of time: over 70 percent of participants stayed in the program for no more than two months.

Exhibit 2
Length of Time in Program for Pierce RSN Participants



[5] DSHS discontinued program funding in April 2002.

Program records indicate that approximately 18 percent of participants obtained Medicaid coverage by the time they left the program, while a quarter found another source for the medication, usually pharmaceutical company samples or participation in indigent drug programs sponsored by pharmaceutical companies (see Exhibit 3).

Exhibit 3
Medicaid Eligibility and Funding Status of Pierce RSN Participants

	N=282	%
At Discharge From Program		
Medicaid Eligible	52	18%
Other Medication or Funding Source	69	24%
Left Without Funding	157	56%
Missing	4	1%
Medicaid Eligible as of November 2002	108	38%

Percentages may not total 100 due to rounding.

The majority of participants left the program without funding; however, a number of persons were unable to complete the Medicaid eligibility process before the program was discontinued in April 2002. Some individuals obtained Medicaid eligibility after the program ended. In November 2002, about 38 percent of participants were listed as Medicaid eligible in state administrative records.

Representatives from Pierce RSN, Puget Sound hospital, mental health agencies, and the jail were contacted regarding program strengths and weaknesses. The representatives reported that the program improved access to atypical antipsychotic medications and addressed the funding gap that occurs between the time a person is first in need of medication until he or she receives a Medicaid coupon or an alternative medication funding source.

All representatives noted difficulties in determining whether and when an individual is Medicaid eligible, complicating program administration.[6] Medicaid eligibility was often difficult to ascertain, for several reasons. Clients moved frequently, did not always know their status, and were difficult to track. Also, sources of data on Medicaid eligibility were not always up-to-date or easily accessible. Once program paperwork was completed, individuals could be found ineligible for the pilot program because they were eligible to receive Medicaid (including retroactive eligibility dates). Agencies would then receive program billing rejections and have to re-bill the state, adding to the administrative workload.

Representatives also reported that the program was underutilized because of restrictions in the state contract. Some restrictions were lifted a year into the program, including the inability to serve persons who received RSN services in the past year. This change increased program use. Other restrictions, such as using program funds for offenders in jail only 30 days prior to release, remained in place. Representatives noted that jail release dates are often unknown, yet staff needed to strictly adhere to the contract requirement, resulting in fewer persons served.

[6] Since state funds are used to pay for the pharmaceuticals under this program, providers reported it was important to thoroughly investigate Medicaid eligibility and bill Medicaid, if possible, since Medicaid is 50 percent federal and 50 percent state funding.

Pierce RSN Participant Characteristics

Overall, participants in the Pierce RSN program had few economic resources and serious mental illnesses. The participants were predominantly white, most were over 30 years old, and about 62 percent were male (see Exhibit 4).

Exhibit 4
Pierce RSN Participant Demographics

	N=274	%
Gender		
Male	169	62%
Female	105	38%
Race/Ethnicity		
White	223	81%
African American	27	10%
Asian	11	4%
Hispanic	3	1%
Native American	2	1%
Other/Unknown	8	3%
Age		
Under 21	10	4%
21 to 30	49	18%
31 to 45	129	47%
46 or Older	86	31%

Data missing for eight participants.

The legislation restricted eligibility to people with incomes less than 200 percent of the federal poverty level. Approximately 39 percent of participants received public assistance when they entered the program, and 31 percent had no source of income (see Exhibit 5). The majority of participants had an independent living arrangement, with about 16 percent homeless or in temporary housing arrangements.

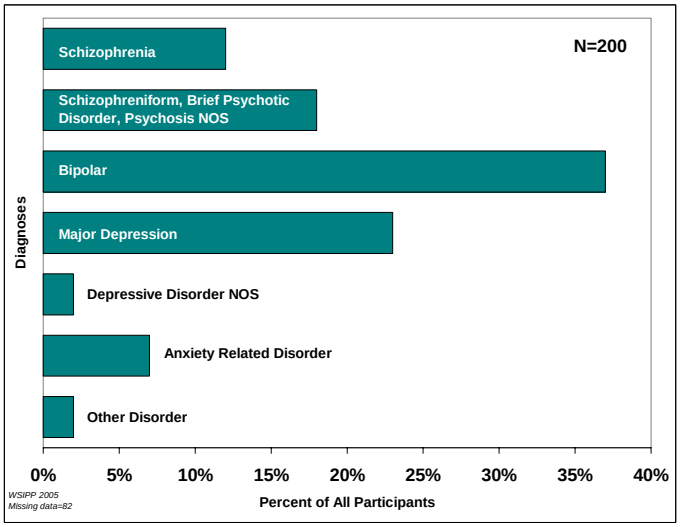
Exhibit 5
Income Source and Living Arrangement for Pierce RSN Participants

	N=274	%
Income Source		
Employment	14	5%
Public Assistance	106	39%
None	84	31%
Unknown	49	18%
Data Missing	21	8%
Living Arrangement		
Independent	189	69%
Homeless	21	8%
Supervised Housing	9	3%
Temporary	21	8%
Unknown	31	11%
Jail	3	1%

Data missing for eight participants. Percentages may not total 100 due to rounding.

The program served a population with a severe mental illness. Exhibit 6 shows that the majority of participants had a serious mental illness diagnosis involving a thought disorder (such as schizophrenia, schizophreniform, or other psychotic disorders) or a mood disorder, including bipolar, major depression, or other mood disorders.

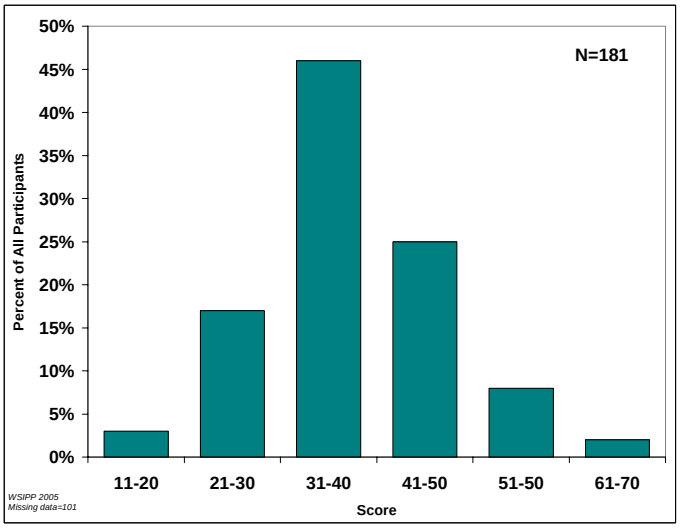
Exhibit 6
Primary Psychiatric Diagnosis for Pierce RSN Participants



We obtained Global Assessment of Psychosocial Functioning (GAF) scores for about two-thirds of participants (see Exhibit 7). The GAF scale is a standard measure of clinician judgment on an individual's overall level of psychological, social, and occupational functioning. Scores range from 1 to 100, with higher scores indicating higher functioning.

The largest proportion of participants (46 percent) had scores in the 31 to 40 ranges, involving impairment in reality testing or communication, or major impairment in several areas of cognitive functioning such as work, school, family relations, judgment, thinking, or mood. About 17 percent of participants were in the 21 to 30 range, which indicates inability to function in almost all areas of cognitive functions, and 25 percent were in the 41 to 50 range, indicating serious symptoms and impairment.

Exhibit 7
Global Assessment of Functioning Scores for Pierce RSN Participants



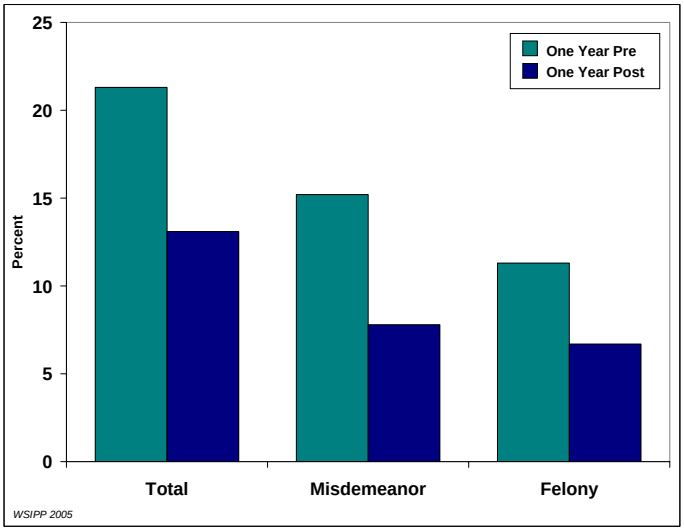
[I'll change 51-50 to 51-60 in the final version]

Pierce RSN Participant Outcomes

The legislation was intended to protect public health, safety, and welfare, as well as reduce the economic and social costs associated with untreated schizophrenia and other psychiatric and neurological disorders. We are able to report outcomes for three major areas specified in the legislation: criminal behavior, mental health service utilization, and employment. There was no opportunity to develop a comparison group of equivalent individuals who did not receive medications under the program. Thus, we compare participants one year prior and one year post program entry to assess differences in criminal justice involvement, mental health services, and work patterns. This study design does not allow one to draw scientific conclusions as there are any number of other factors that could influence the results. In this instance, no other design was feasible.

Criminal Justice Involvement. Overall, a smaller proportion of participants had criminal convictions in the year after program participation (see Exhibit 8). About 21 percent of participants were convicted of either a misdemeanor or felony crime in the year prior to program participation, dropping to 13 percent in the post-year period, a statistically significant difference.[7] Approximately 15 percent of participants were convicted of a misdemeanor crime one year prior to participation; this figure dropped to 8 percent one year after program participation, a statistically significant difference.[8] About 11 percent of participants were convicted of a felony crime one year prior to program participation, dropping to 7 percent in the post-year period, significant only at the 10 percent level.

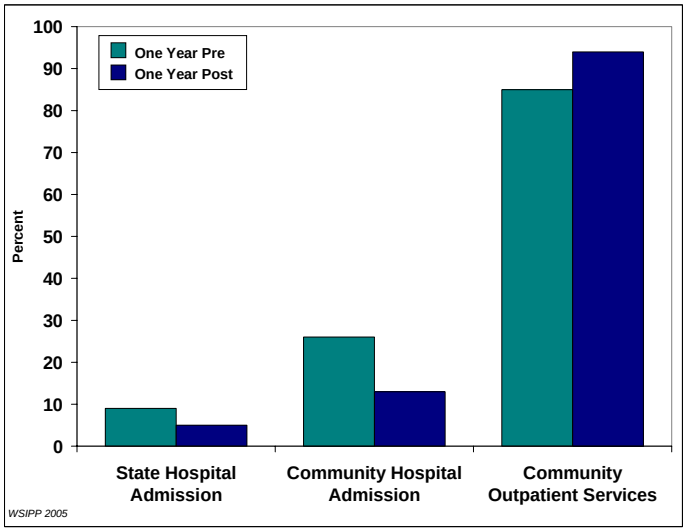
Exhibit 8
Pre and Post Criminal Convictions for Pierce RSN Participants



Mental Health Service Utilization. Participant mental health outcomes, including hospitalization and outpatient services, showed significant changes when comparing the year prior to and after program participation. Exhibit 9 shows that the proportion of participants with state hospital days dropped from 9 to 5 percent from the pre to post period, and the proportion with community psychiatric hospital days dropped from 26 to 13 percent.[9]

In addition, the percentage of participants receiving community outpatient services increased from 85 percent in the year prior to program participation to 94 percent in the year after.[10] Increased use of these services is typically viewed as a positive outcome for this population as it is related to increased medication compliance and, thus, increased stability. Overall, mental health hospitalization was lower in the post period, and outpatient service utilization increased.

Exhibit 9
Pre and Post Mental Health Outcomes for Pierce RSN Participants

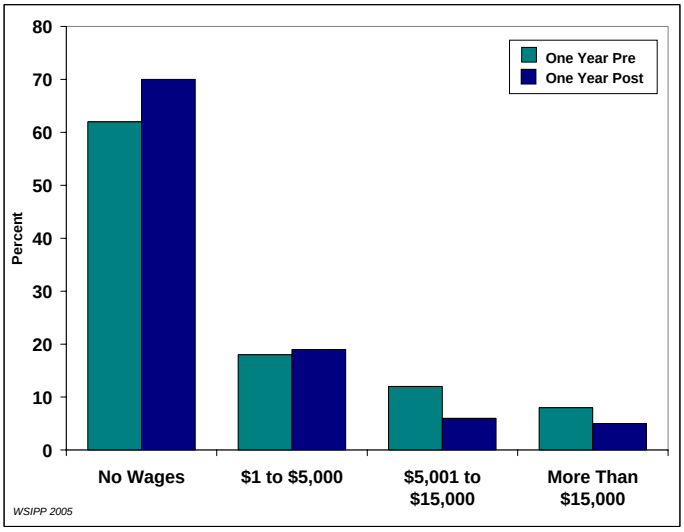


[7] p=.01; as a rule, we counted convictions with an offense date during the year prior to or after participation.
[8] p=.01.

[9] p=.05 and .001, respectively.
[10] p=.01

Employment. Exhibit 10 shows that participants did not have improved employment status or wages after program participation. In fact, the proportion of participants earning more than $5,000 dropped significantly in the post period.[11] These findings are likely explained by larger economic forces. The program began in November 2000 and ended in April 2002, a period of increasing unemployment and decreasing personal income in Washington State.[12] Thus, program outcomes parallel state employment and income trends.

Exhibit 10
Pre and Post Employment and Wages for Pierce RSN Participants



Part II: Harborview Mental Health Services Program

Harborview Mental Health Services (HMHS) is part of Harborview Medical Center (HMC), a teaching and research facility located in the central Seattle area. HMC manages three inpatient psychiatric units, a crisis triage unit, and HMHS. HMHS offers outpatient acute and long-term rehabilitative treatment programs for persons with serious and persistent mental illness. It primarily serves publicly funded and Medicaid-eligible individuals meeting enrollment guidelines of the King County Regional Support Network.

HMHS enrolled 192 individuals in its program between January 2001 and April 2002. DSHS billing invoices show program costs at approximately $128,000: 44 percent of funds were spent on atypical antipsychotic medications, 26 percent on other psychotropic medications, 15 percent on laboratory work, and 15 percent on administration.

HMHS prioritized funding to several HMC internal facilities, including the crisis triage unit, crisis intervention services, and inpatient units, as well as external facilities, including local treatment providers and the King County jail. Exhibit 11 shows that participants entered the program in a variety of ways, including 7 percent who had been hospitalized for involuntary civil commitment and 11 percent who were referred through the criminal justice system. As was the case in Pierce County, nearly all participants were eligible for the program due to lack of medical insurance (see Exhibit 11).

Exhibit 11
Eligibility and Priority Population Status for HMHS Participants

	N=192	%
Priority Population		
HMC Facility Referral	63	33%
External Agency Referral	24	13%
Involuntary Civil Commitment	13	7%
Criminal Justice Referral	21	11%
Other or Unknown Referral	71	37%
Eligibility		
No Insurance	188	98%
Cost Prohibitive Insurance Co-Payment	4	2%

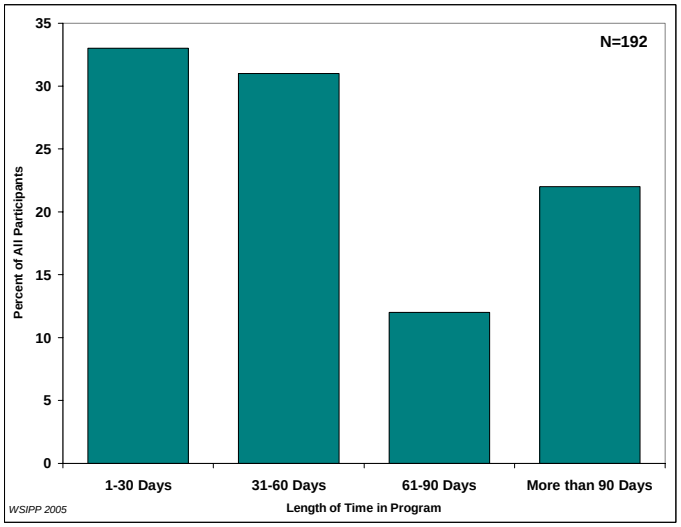
Percentages may not total 100 due to rounding.

[11] p=.001.

[12] See Chapters 4 and 6 in Kirsta Glenn, *2003 Washington State Labor Market and Economic Report*. <http://www.workforceexplorer.com/article.asp?ARTICLEID=1719&PAGEID=67&SUBID=112>.

The Legislature intended program funds to provide short-term access to medications until the person had secured other coverage, such as Medicaid. Exhibit 12 shows most participants received medications for a short period of time: nearly two-thirds stayed in the program for no more than two months.

Exhibit 12
Length of Time in Program for HMHS Participants



Program records indicate that about 44 percent of participants obtained Medicaid coverage by the time they left the program (see Exhibit 13). State administrative records show that 38 percent of participants were Medicaid eligible as of November 2002, six months after the program ended.

Exhibit 13
Medicaid Eligibility and Funding Status for HMHS Participants

	N=192	%
At Discharge From Program		
Medicaid Eligible	84	44%
Other Medication or Funding Source	2	1%
Left Without Funding	104	54%
Other	2	1%
Medicaid Eligible as of November 2002	72	38%

Representatives from HMHS assessed the program's strengths and weaknesses. Overall, they found that the program was useful, as it provided funding for expensive medications and increased access to newer, more effective medications.

Representatives noted that the program could have been improved if it paid for services and more types of medications.[13] Most participants had not been served in the past and had multiple problems; they required many services, and a large proportion were acutely psychotic. HMHS representatives stated additional medications and treatment services are often necessary for this population, such as diabetes medication and drug and alcohol detoxification.

HMHS also had difficulties with program administration. Since program funds could only be used for specific medications and laboratory work, pharmacy and finance managers had to manually sort through pharmacy billing records to determine if medications could be paid for by the program. Fewer restrictions on eligible medications would have eased this workload.

HMHS had less difficulty with Medicaid eligibility than Pierce RSN, due to direct access to the Medicaid Management Information System and a clause in their contract stating that after billing the program for medications they would not bill the Medical Assistance Administration nor reimburse the state when a client obtained retroactive Medicaid eligibility.

HMHS Participant Characteristics

Participants in the HMHS program had few economic resources and were severely mentally ill. Exhibit 14 shows most participants were men over 30 years of age; about half were white and

[13] 2SHB 2663 limited the use of program funds for atypical antipsychotic medications and laboratory testing only.

half were from other racial groups, including approximately 32 percent African American.

Exhibit 14
HMHS Participant Demographics

	N=192	%
Gender		
Male	135	70%
Female	57	30%
Race/Ethnicity		
White	93	48%
African American	61	32%
Asian	13	7%
Hispanic	9	5%
Native American	1	1%
Other/Unknown	15	8%
Age		
Under 21	2	1%
21 to 30	53	28%
31 to 45	92	48%
46 or Older	45	23%

Percentages may not total 100 due to rounding.

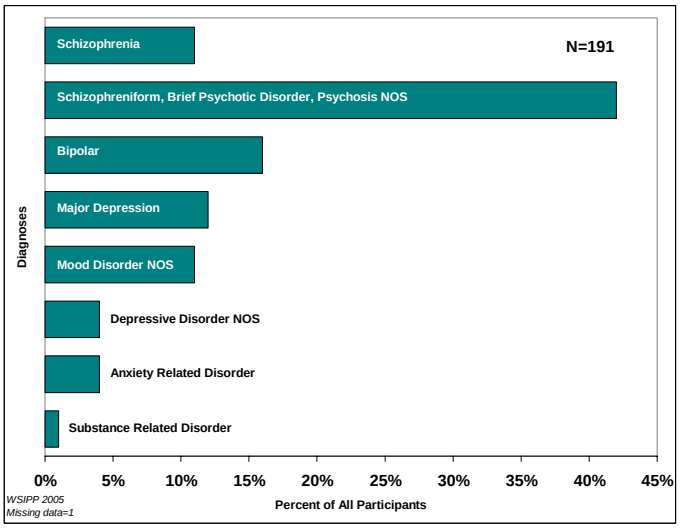
Exhibit 15 shows that only 8 percent of participants received income from employment when they entered the program. Most participants had no income or were on public assistance when they entered the program; the legislation required an income of less than 200 percent of the poverty level. Further evidence of participants' economic disadvantage was the high percentage of homelessness, 61 percent.

Exhibit 15
Income Source and Living Arrangement for HMHS Participants

	N=192	%
Income Source		
Employment	15	8%
Public Assistance	28	15%
None	133	69%
Unknown	16	8%
Living Arrangement		
Independent	68	35%
Homeless	118	61%
Supervised Housing	1	1%
Temporary	3	2%
Unknown	2	1%

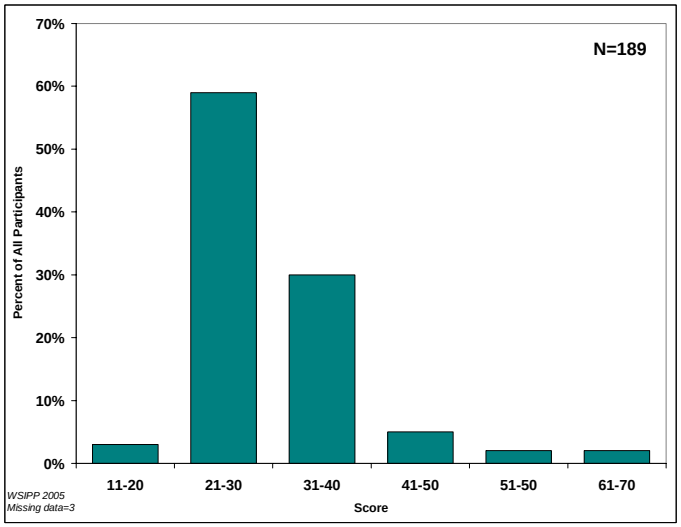
The legislation required that participants have a diagnosis of schizophrenia or other psychiatric or neurological condition that required atypical antipsychotic medication treatment. Exhibit 16 shows that over 90 percent of HMHS participants had a serious mental illness involving a thought disorder (schizophrenia, schizophreniform, or other psychotic disorders) or a mood disorder (bipolar, major depression, or other mood disorders).

Exhibit 16
Primary Psychiatric Diagnosis for HMHS Participants



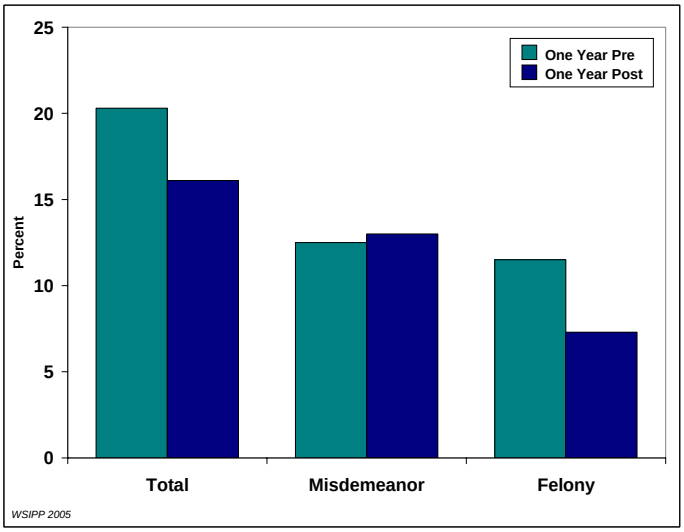
The GAF scores for HMHS participants also show the severity of their mental illnesses (see Exhibit 17). Scores range from 1 to 100, with higher scores indicating higher functioning. The majority of HMHS participants were in the 21 to 30 range, indicating an inability to function in almost all areas of cognitive functioning and behavior that is considerably influenced by delusions or hallucinations, or serious impairment in communication or judgment. About 30 percent of participants were in the 31 to 40 range, involving impairment in reality testing or communication or major impairment in several areas of cognitive functioning, such as work, school, family relations, judgment, thinking, or mood.

Exhibit 17
Global Assessment of Functioning Scores for HMHS Participants



[I'll change 51-50 to 51-60]

Exhibit 18
Pre and Post Criminal Convictions for HMHS Participants



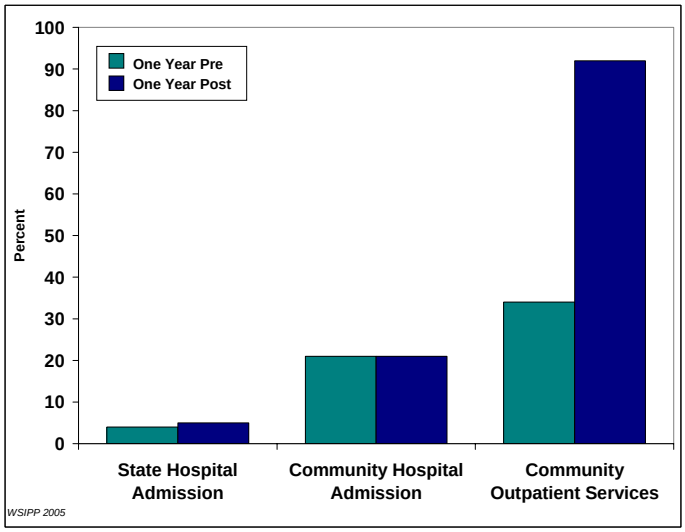
HMHS Participant Outcomes

As was the case with the Pierce RSN population, we compared HMHS participants one year prior and one year post program entry to assess differences in criminal justice involvement, mental health services, and employment. The same research design limitations specified earlier apply to this analysis.

Criminal Justice Involvement. Criminal justice outcomes for participants changed slightly during the pre–post periods. Exhibit 18 shows that total convictions dropped from 20 to 16 percent, and felony convictions dropped from 11 to 7 percent; however, the differences were not statistically significant. The proportion of participants convicted of a misdemeanor crime remained stable at approximately 13 percent.

Mental Health Service Utilization. Mental health hospitalization outcomes for participants remained similar in the pre and post periods (see Exhibit 19). However, the use of community outpatient services increased from 34 to 92 percent,[14] indicating that the HMHS program provided access to community mental health services for a large proportion of individuals who had no services during the year prior to the program.

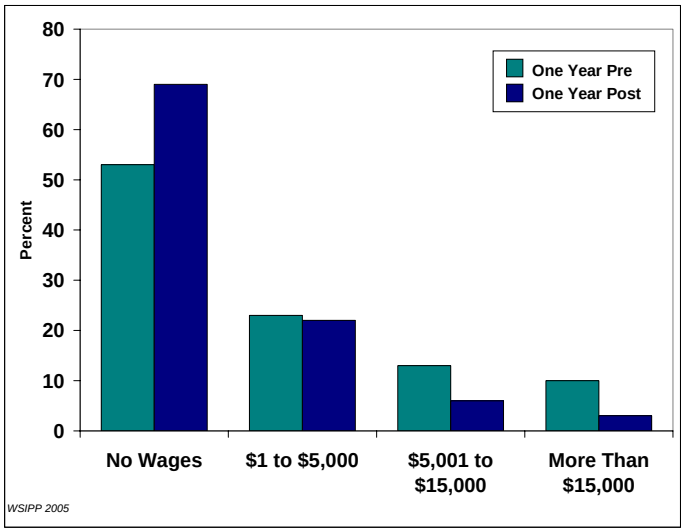
Exhibit 19
Pre and Post Mental Health Outcomes for HMHS Participants



[14] p = .001.

Employment. Exhibit 20 shows that participants' employment status or wages did not improve in the year after program participation. A greater proportion of participants had no earnings from wages in the year after the program, and the proportion of participants earning more than $5,000 dropped significantly in the post-year period.[15] As noted earlier, the program began and ended during a period of increasing unemployment and decreasing income in Washington State, and outcomes correspond to state trends.

Exhibit 20
Pre and Post Employment and Wages for HMHS Participants



Summary

Pierce RSN and HMHS pilot programs enrolled nearly 475 participants with serious mental illnesses, low income, and no medical coverage, meeting legislative requirements to serve a severely mentally ill population with few resources. Most participants had a major psychotic or mood disorder and low psychological functioning. Participants crossed the demographic spectrum. However, men comprised the majority, as did individuals over 30 years of age. Most participants had no income or received public assistance. In addition, HMHS served a large proportion of homeless participants.

The programs provided temporary access to atypical antipsychotic medications consistent with the legislative mandate: over two-thirds of all participants remained in the program for no more than two months. Approximately 40 percent of participants ultimately transitioned to Medicaid coverage.

A comparison of participants before and after the program was the only research design feasible for this study. This design does not allow us to make scientific conclusions about program effectiveness as there are many uncontrolled factors that can influence outcomes.

Comparing the year prior to with the year after program entry, Pierce RSN participants had fewer convictions for misdemeanor and felony crimes, less psychiatric hospitalization, and greater participation in mental health outpatient services. HMHS had slightly fewer felony convictions, little change in misdemeanor convictions and psychiatric hospitalization, but much greater participation in outpatient services. Neither program displayed differences in employment status outcomes; the program ran concurrent to a time of increasing unemployment in Washington State.

Both pilot programs reported difficulties in program administration and scope. Billing rejections due to difficulties determining whether and when a client was Medicaid eligible increased the administrative workload for Pierce RSN and participating agencies. In addition, state contract requirements covered persons in jail only 30 days prior to release, resulting in fewer jail participants. HMHS reported that

[15] p= .01 and .001, respectively.

allowing funds to cover more medications would have reduced the administrative burden of manually sorting medications for billing that were and were not reimbursed under the legislation.

Covering more medications and services would have served HMHS participants more effectively, a population with many other health problems in addition to mental illness.

For further information, please contact the Institute at (360) 586-2677.

Acknowledgements

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