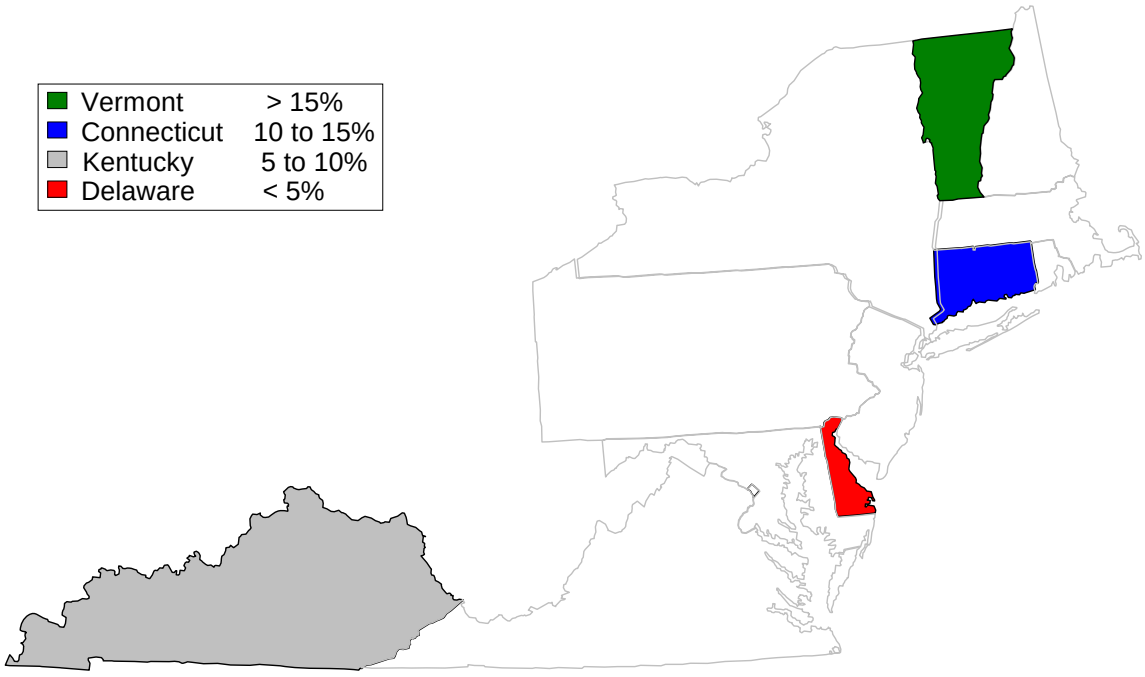
Section 8 Housing Utilization Rates for Adults with Serious Mental Illness: Vermont, Connecticut, Kentucky, and Delaware



Access to safe and affordable housing for adults with serious mental illness is a long-standing concern that is addressed in SAMHSA's new NOMs reporting system. This presentation reports findings from the early stages of a national study of utilization of HUD Section 8 housing by adults with serious mental illness. This analysis used anonymous extracts from a national Section 8 database housed at The Bristol Observatory and from mental health treatment databases maintained by the states of Connecticut, Delaware, Kentucky, and Vermont. At the county level, Section 8 utilization for adults with serious mental illness in Connecticut ranged from 7% to 21%; in Vermont, utilization ranged from 0% to more than 25%; in Delaware utilization ranged from less than 1% to 5%, and in Kentucky utilization ranged from 0% to 23%. There was significant variation in Section 8 utilization among demographic groups. Preliminary analysis indicates that the proportion of mental health service recipients leaving Section 8 housing was similar to the proportion for the general population.

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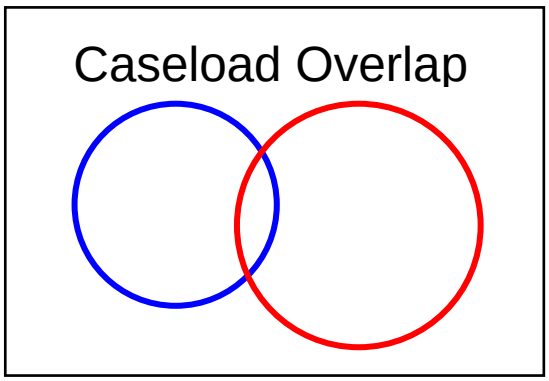
The HUD Section 8 housing choice voucher program is "the federal government's major program for assisting very low-income families, the elderly, and the disabled to afford decent, safe, and sanitary housing in the private market. Since housing assistance is provided on behalf of the family or individual, participants are able to find their own housing, including single-family homes, townhouses and apartments. The participant is free to choose any housing that meets the requirements of the program and is not limited to units located in subsidized housing projects. Housing choice vouchers are administered locally by public housing agencies (PHAs). The PHAs receive federal funds from the U.S. Department of Housing and Urban Development (HUD) to administer the voucher program." [1]

Access to safe and affordable housing has long been a major concern with regard to adults with serious mental illness who are being served in community settings. Early discussions of mental health information systems included an emphasis on housing which was seen as "significant for both the etiology and prognosis for a mental illness" and noted that "changes in a patient's residential arrangement during treatment are regarded by many clinicians as instances in which the client may need special attention due to increased stress." [2] More recently, the President's New Freedom Commission listed "adequate and affordable housing" as essential to consumers' ability to participate fully in their communities.[3]

Today, stability in housing is one of the National Outcome Measures (NOMs) being promoted by the national Substance Abuse and Mental Health Services Administration (SAMHSA). This measurement system anticipates standardized measurement and reporting of performance measures. "Ultimately, they will be aligned across all of SAMHSA's programs, and by FY 2007 they will be implemented within the Community Mental Health Services Block Grant and the Substance Abuse Prevention and Treatment Block Grant."[4] This presentation reports on the early stages of a national study of utilization of Section 8 housing by adults with serious mental illness.

Data and Method



The data used in this analysis include anonymous extracts from a national Section 8 database housed at The Bristol Observatory and anonymous extracts from mental health treatment databases maintained by the states of Vermont, Connecticut, Kentucky and Delaware. The Section 8 database, which was obtained from HUD, includes the date of birth, gender, race/ethnic codes, and state and county codes for all individuals residing in Section 8 voucher program housing in the United States on May 2, 2005. Nationally, this data set includes 1,222,009 individuals. The data used in this analysis also includes extracts from community mental health databases that include comparable information about adults who received community based services for serious mental illness during FY 2004 in Vermont, Connecticut, Kentucky and Delaware.

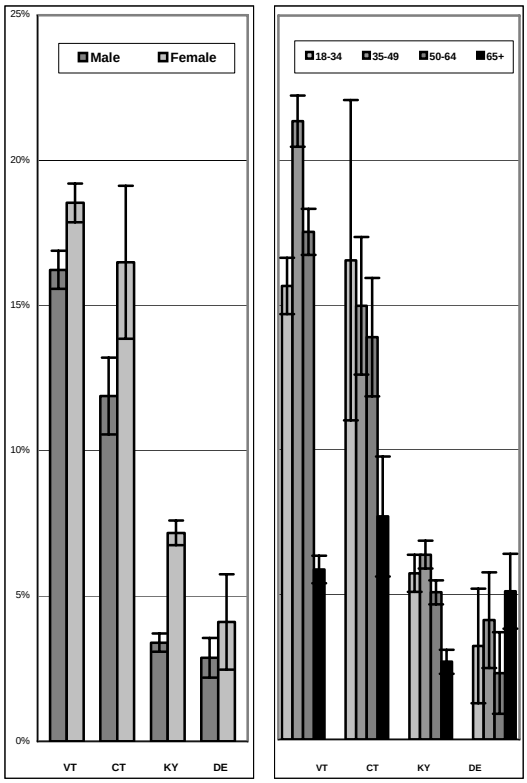
Because the data sets used in this analysis do not share unique person identifiers, Probabilistic Population Estimation (PPE) was used to determine caseload overlap, the number of individuals shared by the mental health and other data sets. PPE is a statistical data-mining tool that measures the number of people represented in data sets that do not share unique person identifiers. [5] PPE reports how many people are represented in and across data sets, but does not reveal who the people are. This approach is unobtrusive and it protects the personal privacy of individuals and the confidentiality of medical records because it does not depend on personally identifying information. [6] The data sets used by PPE are HIPAA compliant "limited data sets".

[1] Pubic and Indian Housing, Housing Choice Vouchers Fact Sheet (http://www.hud.gov/offices/pih/programs/hcv/about/fact_sheet.cfm)
[2] Leginski WA, et.al (1989) Data Standards for Mental Health Decision Support Systems. US Department of Health and Human Services
[3] New Freedom Commission on Mental Health, *Achieving the Promise: Transforming Mental Health Care in America. Final Report*. DHHS 2003.
[4] SAMHSA 2005 Strategic Plan (Draft). (http://www.samhsa.gov/strategicplan/strategicplan05-08.aspx)
[5] Probabilistic population estimation of the size and overlap of data sets based on date of birth. Statistics in Medicine, May 2001 (Banks and Pandiani).
[6] Personal privacy vs. public accountability: A technological solution to an ethical dilemma. Journal of Behavioral Health Services and Research, November 1998. (Pandiani, Banks, and Schacht)

Findings

On May 2, 2005, more than 17% of the adults who had received community based services for serious mental illness in Vermont and more than 14% of adults who had received community based services for serious mental illness in Connecticut during FY2004 occupied residences that were supported by the federal Section 8 Housing Choice Voucher program. These rates of Section 8 housing utilization were substantially greater than rates of utilization of Section 8 housing by adults with serious mental illness in Kentucky (6%) and Delaware (3%).

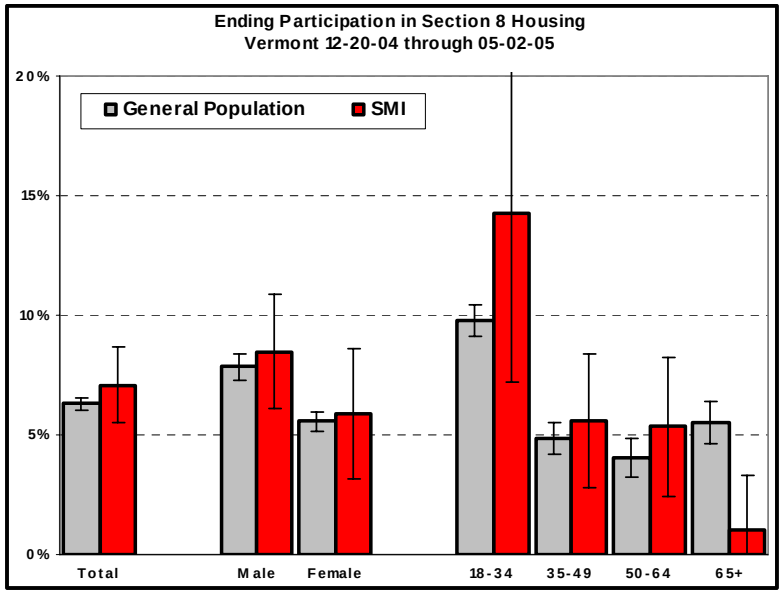
Section 8 Housing Utilization Rates



There were similar gender differences in Section 8 utilization across states, but among age groups differences were inconsistent across states. Women were more likely than men to use Section 8 housing in every state, although the magnitude of the difference varied substantially. In Kentucky, the Section 8 utilization rate for women was more than twice that for men. In Connecticut and Delaware, the difference was in the 30% to 40% range. In Vermont, women with serious mental illness were only about 10% more likely than men to use Section 8 housing. In Connecticut, young adults with serious mental illness in the 18-34 age group had the highest Section 8 utilization rate, in Kentucky and Vermont service recipients in the 35 to 49 age group had the highest utilization rates, and in Delaware, individuals in the 65+ age group had the highest utilization rate.

Among the 145 counties in this study, Section 8 utilization rates for adults with serious mental illness ranged from 25% in Bennington County, Vermont and 23% in Boone County, Kentucky to 0% in one of Vermont's 14 counties and 29 of Kentucky's 120 counties.

In Vermont, the rate at which adults with serious mental illness ended participation in the Section 8 program during a 4-month period was no different than the rate for the general population. In both the general population and the SMI population, young adults (aged 18-34) were much more likely to end participation than older residents. Men in the general population and the SMI population were more likely to end participation than women (although the difference by gender for the SMI adults is not significant). The rate at which mental health service recipients end participation in the Section 8 housing voucher program is an important component of the measurement of residential stability.



This analysis has demonstrated one efficient approach to the uniform measurement of housing stability for mental health and substance abuse service recipients. Future analyses should consider the impact of clinical characteristics of service recipients and social characteristics of communities on patterns of access to and tenure in Section 8 housing. Future analyses should also expand the focus to include other states and regions of the country, as well as to include longer term rates of continuation in Section 8 housing.

PROBABILISTIC POPULATION ESTIMATION

Probabilistic Population Estimation is a statistical procedure that determines the number of people (with known confidence intervals) who are represented in data sets that do not contain unique person identifiers. Probabilistic Population Estimation uses information on the distribution of birth dates in a data set to determine the number of people represented in the data set. The number of people necessary to produce the number of birthdays observed in a single birth year cohort, for instance, would be calculated using the following formula:

$$P_j\left(l_j\right) = \sum_{i=1}^{l} \frac{365}{365-i}$$

where "P_j" is the number of people and "i" is the number of birth dates observed. Similar logic is used to determine the number of people who appear in more than one data set. The table below provides illustrative results of Probabilistic Population Estimation for populations of specified size.

Population Estimates for Specified Numbers of Birth Dates within a Year

Birth Dates	Number of People		Birth Dates	Number of People	
1	1.003	± 0.103	180	249	± 20
10	10.15	± 0.776	250	423	± 38
20	20.6	± 1.54	300	632	± 64
50	54	± 4	330	860	± 101
100	117	± 9	360	1603	± 325

POPULATION OVERLAP

In order to probabilistically determine the number of people shared across data sets that do not include a common person identifier, the sizes of three populations are determined and the results are compared. The number of people in each of the original data sets are the first two populations. The number of people in a data set that is formed by combining the two original data sets is the third data set.

The number of people who are shared by the two data sets is the difference between the sum of the numbers of people represented in the two original data sets and the number of people represented in the combined data set. This occurs because the sum of the number of people represented in the two original data sets includes a double count of every person who is represented in both data sets. The number of people represented in the combined data set does not include this duplication. The difference between these two numbers is the size of the duplication between the two original data sets, the size of the caseload overlap. In terms of mathematical set theory, the intersection of two sets is the difference between the sum of the sizes of the two sets (A+B) and the union of the two sets ($A \cup B$):

$$(A \cap B) = (A + B) - (A \cup B).$$

RELATED READINGS

Probabilistic Population Estimation

Probabilistic population estimation of the size and overlap of data sets based on date of birth. *Statistics in Medicine*, May 2001 (Banks and Pandiani).

Personal privacy vs. public accountability: A technological solution to an ethical dilemma. *Journal of Behavioral Health Services and Research*, November 1998. (Pandiani, Banks, and Schacht)

Large data sets are powerful. *Psychiatric Services*, May 2003, Vol. 54 No. 5 p. 745 (Pandiani and Banks)

Service Systems Research

Involvement in the criminal justice system among recipients of mental health services after September 11. Psychiatric Services 56: 80-84 January 2005. (Pandiani JA, Knisley MB, Banks SM, Simon M, Blackburn P)

Mortality of mental health service recipients in Vermont and Oklahoma. Psychiatric Services, 53(8), 1025-1027 August 2002 (Pandiani, Banks, Bramley, Moore). (Pandiani and Banks)

Mathematical modeling of movement between residential placements: A system analytic approach to understanding systems of care. Journal of Child and Family Studies 3 (1) 41-53 1994 (Pandiani, Maynard, Schacht).

A longitudinal evaluation of a system of care for children and adolescents with a severe emotional disturbance. Evaluation and Program Planning 19 (4) 365-376 1996 (Pandiani, Schacht, Banks).

Impact of multi-agency employment services on employment rates. Community Mental Health Journal 40 (4): 333-345 August 2004 (Pandiani, Tracy, Simon, Banks)

"Cross agency data integration for evaluating systems of care" (2004) in Outcomes for Children and Youth with Behavioral and Emotional Disorders and Their Families, edited by Michael Epstein, Krista Kutash, and Al Duchnowski. (Banks, Pandiani, Simon, and Nagel)

Measuring access to mental health care: A Multi-indicator Approach to Program Evaluation. *Program Planning and Evaluation*. Vol. 25 (2002) pp. 271-285. (Pandiani, Banks, Bramley, Pomeroy, Simon).

Caseload segregation/integration and treatment outcomes for children and adolescents. *Journal of Emotional and Behavioral Disorders*. Vol. 9, No. 4, Winter 2001, pp. 232-238, 247(Banks, Pandiani, and Schacht)

Does closing inpatient beds in one public mental health system result in increased use of inpatient services in other systems? *Mental Health Services Research*, 2000, 2 (4) (Rosenheck, Banks, and Pandiani)

Using incarceration rates to measure mental health program performance. *Journal of Behavioral Health Services and Research*, 25 (3), 300-311, August 1999. (Pandiani, Banks, and Schacht)

The Bristol Observatory (TBO)

TBO is a contract research firm that specializes in human services program evaluation and service system research with an emphasis on treatment outcomes. Our measurement of treatment outcomes is frequently based on analysis of large administrative/operational databases from multiple public agencies using statistical tools that protect the personal privacy of the individuals represented in those databases. One of our primary tools in this work is Probabilistic Population Estimation, a statistical data mining tool that uses anonymous data sets to produce the information on caseload size and overlap in complex systems of care. Probabilistic Population Estimation allows our researchers to measure treatment outcomes, levels of access to care, and caseload overlap where the absence of unique person identifiers and/or concerns about personal privacy precludes direct linkage of records. For more information, visit: www.thebristolobservatory.com

The Vermont Mental Health Performance Indicator Project (PIP)

The PIP encourages rational data-based thinking and decision making within systems of care in Vermont by producing and widely distributing brief data reports on a weekly basis to service providers, consumers, administrators, advocates, and others. These reports rely heavily on analysis of existing administrative databases as a way of learning about the performance of programs and systems of care. All PIP reports are available on-line at http://www.state.vt.us/dmh/docs/pips/pips-by-date.html. The PIP was recently recognized by the Annapolis Coalition on Behavioral Workforce Education as one of the “Innovative Educational Practices” highlighted in the November, 2004 special issue of Administration and Policy in Mental Health.