

## SUMMARY OF STUDIES: MEDICAID / HEALTH SERVICES UTILIZATION AND COSTS

Studies Pertaining to Homeless People in Hospital Settings:				
City / State	Study / Program Description	Health Utilization	Impact of Housing	Additional Information
<p><b>Chicago</b> Housing for Health Partnership<sup>1,2</sup></p>	<p>Population: Homeless people with inpatient hospitalization for chronic medical condition (HIV/AIDS, renal disease, liver disease, cancer, COPD, stroke, diabetes, etc):</p> <ul style="list-style-type: none"> <li>○ Median length of homelessness was 30 months</li> <li>○ 37% on Medicaid at enrollment</li> <li>○ 55% uninsured</li> <li>○ 36% HIV+</li> <li>○ 60% reported drug use in the 30 days before</li> <li>○ 26% mental illness</li> </ul> <p>Study / Program: Random assignment to usual care or intervention = recuperative care (respite) and access to permanent supportive housing</p>	<p>Mean for usual care group (n= 204) over 18 month period:</p> <ul style="list-style-type: none"> <li>○ 2.9 hospitalizations</li> <li>○ 13.1 days in hospital</li> <li>○ 3.9 Emergency room visits</li> </ul> <p>At <i>total</i> of 10,023 days in the nursing home for the entire group (preliminary, unpublished data).</p>	<p>Intervention group (n = 201):</p> <ul style="list-style-type: none"> <li>○ .5 fewer hospitalizations per person per year (29% reduction)</li> <li>○ 2.7 fewer hospital days per person per year (29% reduction)</li> <li>○ 1.2 fewer ER visits per person per year (24% reduction)</li> <li>○ 45% fewer days nursing home (preliminary, unpublished results)</li> </ul>	<p><b>Random Assignment:</b> Rigorous study design allows saying intervention produced the outcomes.</p> <p><b>Sub-study of HIV+ participants</b> found that the intervention group had much higher levels of survival with intact immunity compared to the usual care group (55% versus 34%) and significantly lower viral loads (34K versus 69K).</p>
<p><b>California</b> Frequent Users of Health Services Initiative<sup>3</sup></p>	<p>Population: Adults with frequent and avoidable visits to hospital emergency rooms in 6 counties:</p> <ul style="list-style-type: none"> <li>○ 45% homeless (across all projects)</li> <li>○ 45% to 60% homeless in more urban projects</li> <li>○ 65% chronic disease</li> <li>○ 53% substance abuse</li> <li>○ 32% mental illness</li> </ul> <p>Participants enrolled in intensive case management services; some homeless participants linked to permanent housing in counties where available</p>	<p>For homeless clients who got services but no housing:</p> <ul style="list-style-type: none"> <li>○ 12% fewer ED visits</li> <li>○ 26% fewer inpatient admissions</li> <li>○ 26% <i>increase</i> in number of inpatient days</li> </ul>	<p>Homeless clients connected to permanent housing had greater reductions in ED use and charges compared to those who remained homeless.</p> <ul style="list-style-type: none"> <li>○ 34% fewer ED visits</li> <li>○ 27% fewer inpatient admissions</li> <li>○ Significantly greater reductions in inpatient days = 27% fewer days</li> </ul>	<p><b>Mortality:</b> 5 percent of enrolled participants died. Causes of death often included substance abuse related factors (e.g. liver disease, stroke or organ failure related to alcoholism or other drug abuse). Significant health problems and costs related to addiction.</p>

**Studies of Housing Programs Using the “Housing First” Model\*:**

Please note: These “before and after” studies track changes in utilization of health and other services for homeless individuals who have entered a supportive housing program. For most studies, the results include utilization by people who enter and later leave supportive housing.

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San Francisco <sup>4</sup> Cannon Kip Community House and Lyric Hotel	Population: Homeless (mostly chronic) adults with disabilities in 2 SF supportive housing projects <ul style="list-style-type: none"> <li>o 73% male</li> <li>o Median age 43 (10 years ago)</li> <li>o 59% homeless 2 to 8 years before move-in</li> <li>o 75% both substance use and mental disorders</li> <li>o 91% current or past substance use disorder</li> </ul>	During the <i>one year before</i> entering supportive housing: <ul style="list-style-type: none"> <li>o 53% had at least 1 emergency room visit; average 1.94 visits/person</li> <li>o 19% had inpatient hospitalization(s); average .34 admissions / person</li> </ul> Supportive housing participants were <u>not</u> selected based on prior service utilization	During the <i>one year after</i> entering supportive housing: <ul style="list-style-type: none"> <li>o 56% fewer emergency room visits</li> <li>o 44% fewer inpatient hospital admissions</li> <li>o Control group had no reduction in probability of visiting emergency room and much smaller (not significant) reduction number of ER visits</li> </ul>	<b>Random assignment:</b> Study used random assignment to wait list for control group analysis.
Denver <sup>5</sup> Colorado Coalition for the Homeless/ Denver Housing First Collaborative	Population: Chronically homeless adults with disabling health conditions <ul style="list-style-type: none"> <li>o Average 8 years of homelessness</li> <li>o Priority for enrollment for people with multiple disabilities</li> </ul> Program includes housing (single site and scattered sites) plus Assertive Community Treatment (ACT) services model	During the <i>two years before</i> entering supportive housing: <ul style="list-style-type: none"> <li>o 3.5 ER visits /person</li> <li>o 5.4 inpatient nights/ person</li> <li>o 31 detox nights/ person</li> <li>o 26 days jail/ person</li> </ul>	During the <i>two years after</i> entering supportive housing: <ul style="list-style-type: none"> <li>o 34% fewer ED visits</li> <li>o 40% fewer inpatient hospital days</li> <li>o 82% fewer detox visits</li> <li>o 76% fewer days in jail</li> </ul> Average savings \$31,545 per person (2 years) <ul style="list-style-type: none"> <li>o 50% improvements in health status</li> <li>o 43% improved mental health</li> <li>o 15% reduced substance use</li> </ul>	<b>Small sample:</b> Only 36 people enrolled for 24+ months at time of study; 19 gave consent for study participation.

\*Housing First models include:

- o Expedited housing placement
- o No “readiness” or abstinence requirements
- o Assertive engagement in health and recovery support services

Studies of Housing Programs Using the "Housing First" Model, continued.				
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Massachusetts <sup>5</sup> Statewide Pilot: Housing First program	Statewide pilot for chronically homeless individuals; program includes congregate (shared) and scattered site housing with intensive in-home services <ul style="list-style-type: none"> <li>o 75% male</li> <li>o Average age 46.8</li> <li>o 32% between age 51-61</li> <li>o Average 5.5 years homeless</li> <li>o 57% medical disability</li> <li>o 63% mental disability</li> <li>o 22% active sub. abuse</li> <li>o 47% multiple disabilities</li> </ul>	During the <i>six months before</i> entering supportive housing 184 participants had: <ul style="list-style-type: none"> <li>o 385 E.R. visits</li> <li>o 853 days of inpatient hospital care</li> <li>o 17,177 nights in emergency shelter<sup>6</sup></li> </ul>	Actual Medicaid costs pre & 1 year post housing were obtained from Mass Health for the first 96 participants: <ul style="list-style-type: none"> <li>o Mean Medicaid costs before housing: \$26,124</li> <li>o Mean Medicaid costs after housing: \$8,499</li> <li>o Total annual costs / person before housing: \$33,108</li> <li>o Costs Housing First + post-housing services: \$24,159</li> <li>o Total Savings Per Person: <b>\$8,949</b></li> </ul>	87% participants in program gave consent to participate in study. Data obtained through monthly interviews.  Out of 357 participants, 217 people have remained housed, 8 people have died and 74 people have moved on to other permanent housing, resulting in a residential stability rate of 84%.
Maine <sup>7</sup> Cost Analysis of Permanent Supportive Housing	Population: Formerly homeless supportive housing tenants in Greater Portland area <ul style="list-style-type: none"> <li>o 60% men</li> <li>o 94% serious mental illness</li> <li>o 32% chronic alcohol abuse</li> <li>o 10% chronic drug abuse</li> <li>o Median age 46</li> <li>o 64% entered supportive housing from emergency shelter</li> </ul>	During the <i>one year before</i> entering supportive housing average annual cost per person for health care, ambulance, jail & policy costs were \$28,045 Biggest component of costs was health care in hospitals	During the <i>one year after</i> entering supportive housing: <ul style="list-style-type: none"> <li>o 77% fewer inpatient hospitalizations</li> <li>o 62% fewer ER visits</li> <li>o 60% fewer ambulance transports</li> <li>o 38% fewer psychiatric hospitalizations</li> <li>o 62% fewer days in jail</li> <li>o 68% fewer police contacts</li> <li>o 22% <i>increase</i> substance abuse treatment</li> <li>o 35% <i>increase</i> mental health treatment</li> <li>o 31% <i>increase</i> prescription drug costs</li> </ul> \$944 average savings per person considering service costs + housing costs compared to services 1 year before	Formerly homeless people with disabilities had lived in supportive housing for at least one year at time of recruitment to participate in the study. Study included 99 who gave consent (out of 159 who met study criteria)

Studies of Housing Programs Using the "Housing First" Model, continued.				
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Seattle <sup>8</sup> 1811 Eastlake: Downtown Emergency Service Center	Population: Chronically homeless alcoholics (public inebriates) who were most frequent users of crisis services: <ul style="list-style-type: none"> <li>o 93% male</li> <li>o Average age 48 years</li> <li>o Average 31 months homeless in past 36 months</li> <li>o 44% co-occurring serious mental illness</li> <li>o 54% hepatitis or other liver disease</li> <li>o 42% seizure disorders</li> <li>o 23% heart disease</li> </ul>	During the <i>one year before</i> entering supportive housing 75 residents had: <ul style="list-style-type: none"> <li>o \$3.5 million Medicaid charges (including 1152 visits to Harborview Medical Center)</li> <li>o 540 EMS paramedic interventions</li> <li>o 5,549 Sobering Center admissions</li> <li>o 1,233 county jail days</li> </ul>	During the <i>one year after</i> entering supportive housing: <ul style="list-style-type: none"> <li>o 41% lower Medicaid charges (including 32% fewer visits to Harborview Medical Center)</li> <li>o 19% fewer EMS paramedic interventions</li> <li>o 87% fewer sobering center admissions</li> <li>o 42% fewer days in jail</li> <li>o 1/3 reduction in days of drinking to intoxication</li> </ul>	<b>Mortality:</b> 7 people (9%) died in first year including one who died after moving out.  One-year retention in housing: 66%  3-year study in progress
Seattle <sup>9,10</sup> Begin at Home: Plymouth Housing	Population: Long term (chronic) homeless (average 41 months current episode) with complex needs (physical and/or psychiatric conditions) from Medical Respite program (\$10,000 + costs in past year) and/or frequent users of Sobering Center (60+ visits in past year) <ul style="list-style-type: none"> <li>o 75% male</li> <li>o Average age 49.9</li> <li>o 74% mental illness</li> <li>o 68% alcohol/ drug</li> <li>o High rates of chronic medical conditions (chronic infection / abscesses, hepatitis, respiratory, heart, liver disease, etc.)</li> </ul>	During the <i>one year before</i> entering supportive housing the 20 participants had: <ul style="list-style-type: none"> <li>o 57 inpatient admissions / 329 hospital days</li> <li>o 191 Emergency Dept visits</li> <li>o 349 Sobering Center visits</li> </ul>	During the <i>one year after</i> entering supportive housing the 20 participants had: <ul style="list-style-type: none"> <li>o 13 inpatient admissions / 56 hospital days</li> <li>o 50 Emergency Dept. visits</li> <li>o 11 Sobering Center visits</li> </ul> <p>Acute care service cost avoidance \$1.5 million in first year; compared to \$372,000 cost of housing &amp; services program (20 participants)</p>	

Studies of Housing Programs Using the "Housing First" Model, continued.				
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Rhode Island Housing First Pilot	<p>Population: Chronically homeless single adults. Fifty people moved into subsidized apartments with attached services (late 2005 – mid 2007)</p> <p>Of the 41 people interviewed for the study:</p> <ul style="list-style-type: none"> <li>73% were male</li> <li>Average number of days homeless prior to entering housing was 335.</li> <li>83% had at least four episodes of homelessness in the last three years</li> </ul>	<p>During the <u>one year before</u> entering supportive housing:</p> <ul style="list-style-type: none"> <li>534 hospital overnights</li> <li>73 mental health overnights</li> <li>177 emergency room visits</li> </ul>	<p>During the <u>one year after</u> entering supportive housing:</p> <ul style="list-style-type: none"> <li>93% remained in supportive housing</li> <li>Costs for hospital overnights decreased from \$917,946 to \$235,503</li> <li>Decreases in use of hospitals, detox, emergency room, jails, prisons, and shelters resulted in savings of \$7, 946 per client after taking into account cost of supportive housing</li> </ul>	
Portland, ORDD <sup>11</sup> Community Engagement Program: Central City Concern	<p>Population: Chronically homeless adults with multiple disabling conditions</p> <ul style="list-style-type: none"> <li>80% male</li> <li>Average age 42.2 years</li> <li>Average 3.7 years homeless in past 5 years (8.6 yrs @ lifetime)</li> </ul> <p>Assertive Community Treatment (ACT) model with permanent housing</p>	<p>\$42,075 / person estimated average annual pre-enrollment costs for major services</p> <ul style="list-style-type: none"> <li>More than 80% of total costs were for inpatient medical hospitalizations &amp; ER visits</li> <li>About 10% of total costs were for mental health or alcohol &amp; drug inpatient &amp; outpatient</li> </ul>	<p>\$16,108 / person estimated cost of services in first year after enrollment</p> <ul style="list-style-type: none"> <li>58% fewer days inpatient medical hospitalization</li> <li>87% fewer ER visits.</li> </ul> <p>Program significantly increased outpatient visits for mental health and alcohol &amp; drug treatment</p> <p>\$9,668 avg. annual cost services</p>	<p><b>Small sample:</b> Only 39 participants identified for pilot study, 35 completed 3 interview schedule. Pre-enrollment information based on self-report and average costs for services provided by experts</p>
San Francisco <sup>12</sup> Plaza Apartments	<p>93 chronically homeless individuals who moved into the Plaza between November 2005 and January 2006. Most residents have a severe persistent mental illness and a substance use disorder.</p>	<p>In the year before moving in, residents averaged \$33,686 per person in healthcare costs.</p>	<p>In the year after moving into the Plaza, average healthcare costs dropped to \$9,786 per person.</p> <p>The largest decrease was in Skilled Nursing Facility days, which dropped from 3793 days in the year before entering the Plaza and 124 day in the year after entry.</p>	<p>Findings in an unpublished manuscript.</p>

OTHER STUDIES				
<p><b>Boston<sup>13</sup></b> Rough Sleepers: A Five Year Prospective Study in Boston, 1999-2003</p>	<p>119 street dwellers. Costs for this cohort were tracked over 5 years</p>	<ul style="list-style-type: none"> <li>o 18,384 E.R. visits</li> <li>o 871 medical hospitalizations</li> <li>o Average annual health care cost \$28,436 for those living on the street</li> </ul>	<p>Average annual health care costs for those in cohort who obtained housing: \$6,056</p>	
<p><b>Illinois<sup>14</sup></b> A Statewide Study of Supportive Housing</p>	<p>177 supportive housing residents tracked two years before and two years after entering supportive housing</p> <ul style="list-style-type: none"> <li>o 52% male</li> <li>o Average age of 42 at study enrollment</li> </ul>	<p>In the two years before being housed, residents used a total of \$1,422,399 worth of Medicaid-reimbursed health services and \$400,872 worth of state mental health hospital services.</p>	<p>Medicaid-reimbursed health services costs for this group decreased to \$1,240,128 in the two years after entering supportive housing. Costs for state mental health hospital use decreased almost entirely (only \$873 in the two years after entering supportive housing).</p> <p>Total mainstream services cost decreased by over \$4,000 per person.</p>	
<p><b>Minnesota<sup>15</sup></b> Supportive Housing and Managed Care Pilot</p>	<p>518 single adults and families with long histories of homelessness and complex needs were housed through the pilot program:</p> <ul style="list-style-type: none"> <li>o Average of five years spent homeless</li> <li>o Average of two serious medical conditions</li> <li>o More than 60% experienced more than three major traumas</li> </ul>	<p>Prior to entering supportive housing:</p> <ul style="list-style-type: none"> <li>o Medical costs were \$2,869 per year for single adults and \$1,528 per year for adults in families</li> <li>o Mental health costs were \$4,299 per year for single adults and \$492 per year for adults in families</li> </ul>	<p>Pilot participants used more mainstream services after entering supportive housing. When compared to a matched comparison group, however, the study found that pilot participants were more likely to be receiving preventative care, including outpatient care, and receiving prescription medications, and less likely to be receiving costly inpatient and detox services.</p> <p>Among pilot participants mental health improved and substance use decreased</p>	<p>The pilot resulted in improvements in mental health outcomes and decreases in alcohol and drug use for pilot participants.</p>

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<sup>1</sup> To access this report, please visit: <http://jama.ama-assn.org/cgi/content/full/301/17/1771>

<sup>2</sup> To access a policy paper from the Third Housing and HIV/AIDS Research Summit, which describes this study please visit:

<http://documents.csh.org/documents/ResourceCenter/SysChgToolkit/CredibleData/NAHCSummitIII/PolicyPaper.pdf> To access a March, 2008 press release describing the results of the study please visit: [http://www.aidschicago.org/about\\_afc/3\\_6\\_2008.php](http://www.aidschicago.org/about_afc/3_6_2008.php)

<sup>3</sup> To access the Final Report, published August, 2008, please visit: <http://documents.csh.org/documents/fui/FUHSIEvaluationReportFINAL.pdf>

<sup>4</sup> To access this report please visit: <http://psychservices.psychiatryonline.org/cgi/content/full/57/7/992>

<sup>5</sup> To access the December, 2006 report, please visit: [www.shnny.org/documents/FinalDHFCCostStudy.pdf](http://www.shnny.org/documents/FinalDHFCCostStudy.pdf)

<sup>6</sup> This data was from June, 2007 Progress Report. To access, please visit: <http://www.mhsa.net/matriarch/documents/HHG%20June%20report%20FINAL.pdf>

<sup>7</sup> To access the September, 2007 report, please visit: <http://documents.csh.org/documents/ResourceCenter/SysChgToolkit/CredibleData/CostOfHomelessness.pdf>

<sup>8</sup> For a description of preliminary findings, distributed in January, 2008, please visit: [http://www.ich.gov/newsletter/images/2008\\_summit/Final1811CostNumbers.pdf](http://www.ich.gov/newsletter/images/2008_summit/Final1811CostNumbers.pdf). Additional findings from this study are presented in Larimer et al, (April 1, 2009) JAMA, Vol 301, no.13.

<sup>9</sup> To access the October, 2007 report, please visit: [http://www.ich.gov/newsletter/images/2008\\_summit/Final1811CostNumbers.pdf](http://www.ich.gov/newsletter/images/2008_summit/Final1811CostNumbers.pdf)

<sup>10</sup> To access a press release describing the success of both the 1811 Eastlake and Plymouth Housing sites, please visit:

<http://www.seattle.gov/news/detail.asp?ID=8078&Dept=40>

<sup>11</sup> To access this report, please visit: <http://documents.csh.org/documents/policy/PortlandCostStudy.pdf>

<sup>12</sup> Information from an unpublished manuscript by Joshua Bamberger, MD and Honora Considine-Cortelyou

<sup>13</sup> O'Connell, JJ, Swain S. Rough Sleepers: a Five Year Prospective Study in Boston, 1999-2003. Presentation, Tenth Annual Ending Homelessness Conference, Massachusetts Housing and Shelter Alliance, Waltham, MA 2005.

<sup>14</sup> To access the full evaluation conducted by the Mid-America Institute on Poverty, please visit: <http://www.heartlandalliance.org/whatwedo/advocacy/reports/supportive-housing-a-wise-investment-summary-2009.pdf>

<sup>15</sup> To access the full report conducted by the National Center on Family Homelessness, please visit:

<http://hearthconnection.org/files/The%20Minnesota%20Supportive%20Housing%20and%20Managed%20Care%20Pilot%20-%20Evaluation%20Summary%20-%28March%202009%29.pdf>