HOUSING WITH SERVICES

Executive Summary, October 2016

Institute on Aging, Portland State University

This Executive Summary describes findings of an evaluation of the Housing with Services project in Portland, OR. Support was provided by Oregon's State Innovation Model (SIM) grant from the U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, Funding Opportunity Number CMS-1G1-12-001.

Acronyms and Abbreviations

CORE	Center for Outcomes Research and Education, Providence Health & Services
DADVS	Department of Aging, Disability and Veteran Services, Multnomah County
ED	Emergency department
HWS	Housing with Services
IP	Inpatient hospitalization
LLC	Limited Liability Corporation
OPMH	Outpatient mental health
PCP	Primary care provider
T1	Time 1 survey (pre-Housing with Services)
T2	Time 2 survey (16 months after HWS started)

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Executive Summary

The evaluation of Housing with Services, LLC (HWS) was designed to assess the implementation process and impacts of a novel program of coordinated health and social services on behalf of over 1,400 residents of 11 affordable housing properties in Portland, Oregon. Affordable housing for older adults and persons with disabilities provides an important financial subsidy for persons with low incomes. However, housing alone is not enough for some residents who lack access to health and social resources, including a primary care provider, preventative health services, mental health services, and food. Housing with Services, LLC was formed by a group of nine non-profit organizations to address social determinants of health, including housing instability, food insecurity, and social isolation among low-income adults living in publicly subsidized housing in Portland, Oregon. The HWS team includes several housing, health, and social service agencies that collaborated to provide and coordinate services. This program aligns with the Oregon Health Authority's triple aim of better health, better care, and lower costs.

The project's launch involved forming a Limited Liability Corporation (LLC) and financial equity contributions from LLC partners: Cedar Sinai Park, CareOregon, Home Forward, REACH Community Development, Asian Health and Service Center (AHSC), Jewish Family and Child Services, Sinai In-Home Care, Cascadia Behavioral Health and LifeWorks NW. The LLC defined a governance and decision-making structure and also addressed risk sharing, intellectual property and liability protections.

Project funders included the LLC partners, a State Innovation Model (SIM) grant to Oregon Department of Human Services and Oregon Health Authority, Meyer Memorial Trust, Family Care (a regional Coordinated Care Organization), Enterprise Community Partners, NeighborWorks and Providence Health Systems. Grants from the Harry and Jeanette Weinberg Foundation and the HEDCO Foundation were used to develop a health and wellness center on the first floor of a centrally located apartment building to house HWS and LLC partner staff and space for social activities and health services.

Low-income older adults and persons with disabilities are at risk of poor health outcomes. Barriers to health and social services, combined with poor health, can lead to housing instability, homelessness, hospitalization and use of other high cost health services. By coordinating access to health and social services, affordable housing residents might have better health outcomes and quality of life, while using fewer expensive health services such as hospitals. HWS coordinated with a variety of non-profit and government agencies, including the Multnomah County Aging, Disability and Veteran's Services, health insurance providers that cover the majority of Medicaid and Medicare Advantage members in Oregon (CareOregon, Family Care, and Providence), and local social and health service agencies.

Affordable Housing Sites

The participating affordable housing properties were designated by HUD for elderly (age 62 or older) and adults with disabilities. A total of 10 properties, home to over 1,400 individuals, were

included in the evaluation (an eleventh property was excluded because of a months-long renovation project). These properties are owned or managed by three agencies: Harsch Property Management, Reach Community Development Corporation, and Home Forward (Portland's Housing Authority).

Housing with Services Program Goals and Implementation

The program goals were developed during a two-year planning process that included input from over 20 non-profit health and social service and housing agencies and state and county government staff as well as residents. In addition, a survey of resident needs and preferences was conducted, and CareOregon and Multnomah County Department of Aging, Disability and Veteran Services reviewed their respective administrative records to learn about characteristics of building residents. These various efforts resulted in the below program goals (Figure 1).

Figure 1. Housing with Services Program Goals

1	Promote optimal use of health and social services by: improving access to health and social services, and reducing health care costs associated with emergency department use and other high-cost health services	**2**	Improve access to long-term supports and services, and delay nursing home admissions
3	Improve housing stability	**4**	Improve resident quality of life
Underlying Goal: Integrate culturally-specific services & programs			

All residents were eligible for HWS-sponsored social events and service coordination. Services began in September 2014 with two HWS program staff and assigned staff from several partner agencies, including CareOregon clinical staff, community health workers from AHSC, and behavioral health staff from two mental health agencies.

Figure 2. Initial Housing with Services Program Components

- Core staff (Program Director, Operations Manager)
- Affordable housing providers and Resident Services Coordinators
- Health and social service provider partners
- Health and Wellness Center
- Resident Advisory Council
- Culturally-specific outreach, education and health navigation
- Behavioral health outreach and intervention

The program staff began by meeting and establishing rapport with residents and identifying those at risk for negative health outcomes or who were eligible for but not receiving health and social services. They helped residents enroll in health plans, access social services, connect with primary care providers

(PCP's) and acquire durable medical equipment. CareOregon staff identified at-risk residents based on referrals from neighbors or building staff who were concerned about a resident's health; referral from a health, housing, or social service agency; an inpatient or emergency department hospital encounter; CareOregon case worker referrals; and through staff follow up with a previously engaged client. Following a referral, clients might receive a visit or phone call from a CareOregon clinician or health navigator to assess the resident's current health status and need for additional support. Following an Emergency Department (ED) visit, the Health Navigator met the client to explain how to connect with a PCP and to assess reasons for the ED visit that could be prevented in the future.

Key Findings

Although HWS was in a developmental process during the first several months of this evaluation, there were several successes, emergent trends and signs of promise associated with key program components. These findings are based on two self-administered surveys completed by over one-third of building residents, analysis of health service claims records during the first 10 months of the program conducted by the Providence Center for Outcomes Research and Evaluation (CORE), and a database maintained by HWS staff that tracked Housing with Services program staff contacts with building residents.

Resident Profile

The residents who live in the participating apartment buildings served by HWS are diverse in terms of age, race, ethnicity, and income, as well as by health and disability status. Residents range in age from 24 to 94, with an average age of 67. Most residents are White and about 8% of residents are Black (based on claims records). Nearly one-quarter (24%) of those who completed two surveys identified as Asian. While all residents have low incomes as a condition of eligibility criteria, 14% of survey respondents said they have no income, and only 25% had incomes over $11,000 per year. The average length of residence was 8 years (median of 5 years), with a range from one month to 33 years.

Analysis of health insurance claims included residents enrolled in Medicaid or dually enrolled in Medicaid and Medicare: 1,395 residents of whom 500 received HWS and were treated as "cases" and the remaining 895 were treated as controls (no HWS contact). Based on claims analysis, residents with HWS contacts were older than those who did not have HWS contacts. For example, among residents who had a HWS contact, 30% were over age 70, and only 5% were under age 45. Women were about 1.3 times more likely to have a HWS contact compared to men. Residents who used HWS were at least 1.5 times more likely to have a mental health condition, and twice as likely to have diabetes, hypertension, and obesity, compared to those with no HWS contacts.

The top five medical diagnoses based on claims were asthma, chronic bronchitis, diabetes, hypertension, and obesity, and the top mental health diagnoses were affective disorder, bipolar disorder, depression, schizophrenia, paranoid state, and psychological disorder. The top 10 diagnoses reported by survey respondents were hypertension, depression, sleep disorder,

anxiety, acid reflux, heart disease, severe dental problems, diabetes, severe vision problems, and post-traumatic stress disorder (PTSD).

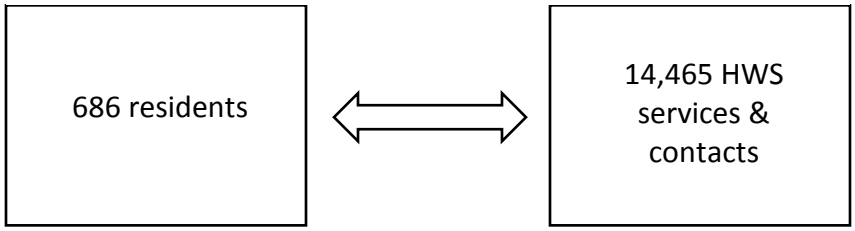
Resident Case Study: Marty

Marty, age 55, moved to his building in 2005. Before that, he had been homeless two years after the loss of a tech job and divorce. He says that his building is in an excellent neighborhood, and he is well-known locally through his volunteerism (>10 organizations). He keeps busy volunteering with FoodRx and coordinating the food pantry in his building. Marty is guided by the value that everyone is accorded a measure of respect.

Marty had significant health problems this year: He woke up with a scratchy throat and couldn't speak. After 3 weeks, he had trouble breathing at night, and the CareOregon Health Navigator advised him to go to Urgent Care rather than wait for an appointment (he didn't have a primary care physician). He was diagnosed with stage 4 pharyngeal cancer, and immediately began a treatment plan that included radiation and chemotherapy. A CareOregon nurse went to medical appointments with him. FoodRX helped with special foods and protein shakes, and Give2Get gave him a Cuisinart. Marty is now cancer-free. However, he had a heart attack, requiring hospitalization to insert a stent. During these illnesses, Marty failed his annual apartment inspection, and the Give2Get Program Manager helped him clean his apartment, enabling him to pass the follow-up inspection. Marty talks of the success of Housing with Services and Give2Get. He has been involved as a volunteer from the beginning, and can't believe how he's been able to use skills to get things done to help others.

Residents' Use of Housing with Services

Figure 3. Count of Residents Using Housing with Services, September 2014 to January 2016



HWS staff and partners used a shared database to track resident services and contacts (Figure 3). Because the number of HWS contacts ranged from 0 to over 300, the analyses compare residents who had 24 or more contacts with HWS (high utilizers) and those with one to 23 contacts (low utilizers), to those with no contacts. Among residents who completed two surveys, 19% were high utilizers, 40% were low, and 41% had no HWS contacts. High utilizers had more contact than low utilizers on advocacy, benefits, case management, information and referral, healthcare services, isolation interventions, mental health, monitoring, outreach, transportation, and various other reasons.

Figure 4. Most and Least Used Housing with Services Services/Contacts

Most frequently used	Least often used
Benefits/insurance access	Legal assistance
Information and referral	Family support
Healthcare services	Lease education
Mental health services	Employment
Isolation intervention	Fair housing
Monitoring services	
Outreach	

Sixteen months after HWS began, residents were surveyed to see if they had attended a HWS event or had heard of HWS services or staff. Over half of survey respondents said they had attended an event or used a service (Table 1).

Table 1. Survey Respondents Use of HWS

Attended a HWS event/used a service	**64%**
Have heard the name HWS	**29%**

Goal 1. Promote optimal use of health and social services

This goal relates to the Oregon Health Authority's aim of promoting better health and care at lower costs. The HWS partners connected residents with primary care providers, preventative health services, outpatient mental health services, and food resources. At the same time, the partners attempted to direct residents to needed medical services provided by hospitals, EDs use, and nursing facilities, while providing alternatives to these medical services when appropriate. Reducing ED use can both improve health and reduce costs for some individuals.

Access to Primary Care Clinic and Preventative Health Services

The resident survey asked whether there was one doctor's office, clinic, or health center the resident usually visited when sick, and whether they had used preventative health services.

Key Findings: Preventative Health Services	• 91% of HWS users reported they had access to a primary care clinic, compared to 81% who did not use HWS ($p < .05$). • 80% of residents got a flu vaccine in 2016 compared to 69% in 2014. Residents who had some HWS contact were more likely to have a flu vaccination. • 89% of residents who had some HWS contact reported more preventative screening (e.g., blood pressure checks, colorectal exam, mammography) compared to 78% residents with no HWS contact.

Overall, residents who had contact with HWS were more likely to use preventative health services.

Access to Outpatient Mental Health (OPMH)

One HWS program goal was to improve residents' access to non-hospital services. Analysis of claims records indicate that residents with at least one HWS contact had higher OPMH use.

Key Findings: OPMH Use	Outpatient mental health use increased among residents with HWS contacts. • The OPMH use rate was 1.0 visits PMPY among HWS contacts compared to .80 visits PMPY for residents with no HWS contacts.

Social and Health Profiles Among Residents with a Mental Health Diagnosis

Nearly half of survey respondents—45%--said they had a mental health diagnosis (e.g., depression, bipolar disorder, schizophrenia). These residents rated their health and overall quality of life lower, reported more problems with mobility, pain, feeling anxious or depressed, and ability to manage self-care and daily activities, compared to residents without a mental health diagnosis. In addition, more residents with a mental health diagnosis were food insecure, reported use of an ED, were hospitalized, called 911, and visited a PCP; compared to residents who did not have a mental health diagnoses.

Key Findings: Mental Health	• Residents with a mental health diagnosis had 32 HWS contacts compared to 20 contacts on average among residents without this diagnosis ($p < .05$). • 91% of residents with a mental health diagnosis reported at least one visit to a primary care clinic compared to 84% of those without this diagnosis ($p < .05$).

On nearly every measure, residents with a mental health diagnosis fared worse, compared to residents who did not report this diagnosis. Future analysis should examine whether HWS outreach improved outcomes for residents with a mental health diagnosis.

Connect with Residents who Have Hospital Use

Information about hospital use was collected from claims records and from the resident surveys.

Key Findings: ED and Hospital Use	HWS successfully engaged with residents whose health needs were greater both before the program was implemented and over time. • Based on claims analyses, in the 6 months before HWS began, both inpatient hospital and ED use were higher among residents who later had HWS contact, compared to those who did not. • Based on claims analyses, ED visits went down slightly among HWS users, from .722 to .711 PMPY (n.s.)

	• HWS staff had more contacts with 256 residents who said they had an ED visit in the prior 6 months. Overall, 45% of residents who had a high level of HWS contacts visited the ED, compared to residents with low (31%) and no HWS contact (20%) ($p < .01$). • HWS staff had more contacts with residents who said they were hospitalized overnight. Overall, 26% of residents with a high level of HWS contacts were hospitalized overnight compared to 13% of residents with low and 12.5% of residents with no HWS contacts ($p < .05$).

These findings make sense given that HWS staff and partners made referrals to hospital care for residents who needed it and because HWS clinicians contacted residents who were discharged from a hospital.

Improve Food Access

Access to food is a social determinant of health. Causes of food insecurity include low income, physical disability, mental illness, and lack of information about food resources.

Key Findings: Food Access	• Food insecurity decreased by 50% among residents with a high level of HWS contact, and by 34% among those with a lower level of contact. • Food insecurity was higher among residents with a mental health diagnosis (40%) compared to those without this diagnosis (19%, $p < .001$). • 27% of residents at high risk of social isolation were food insecure compared to 19% of residents at low risk (approaching significance).

Overall, residents who had HWS contacts reported far less food insecurity compared to residents with no contacts, over time.

Goal 2. Improve Access to Long-term Services and Supports

Access to long-term services and supports (LTSS) such as personal care assistance, housekeeping, and shopping, can support aging in place and delay admission to a nursing facility, residential care, or adult foster home. Oregon Department of Human Services (DHS) uses Medicaid dollars to pay for nursing facilities and LTSS, and has supported LTSS use because consumers prefer to remain in their homes and doing so is less costly than nursing facility services.

Key Finding: LTSS	The number of Medicaid-eligible residents with HWS contacts received long-term services and supports increased during the program period.

Most of the approximately 1,400 residents in the participating buildings are eligible for Medicaid-financed long-term services and supports (LTSS) managed by Multnomah County's Aging, Disability, and Veteran's Services Division (ADVSD). At the start of the HWS program (Fall

2014), 1,163 Medicaid-eligible residents resided in the buildings. Of these 1,163 Medicaid-eligible residents, 219 (18.8%) were receiving LTSS—usually an aide who assists with tasks such as shopping, preparing meals, and personal care (e.g., bathing, dressing). These 219 residents represented 15.6% of all 1,400 residents. As of July 2016, 1,019 Medicaid-eligible residents lived in the participating buildings; the residents receiving Medicaid-financed LTSS represented 21.2% (n=216) of Medicaid clients and 15.4% of all residents.

To assess differences between October 2014 and July 2016, we looked at services received by 276 matched Medicaid-eligible residents who had a HWS contact. Most, 91.7% still lived in the building, 2.9% moved to community-based housing, 2 moved to a nursing facility (.7%), 1 person became homeless (.3%), and the remaining 4% either moved out of the ADVSD system or died. Of these 276 residents, 5.8% moved from being eligible for services to receiving LTSS. Based on these preliminary numbers, it is premature to estimate potential cost savings. However, if HWS delayed nursing facility entry, the cost savings would be significant. Monthly Medicaid based rates in 2016 are $1,405 for residential care, $1,371 for adult foster care, and $8,432 for nursing facility care. In comparison, homecare workers rates are $14.00 per hour.

Goal 3. Improve Housing Stability

HWS staff and partners worked to support aging in place and housing stability by helping residents prepare for and pass annual inspections and reducing the number of evictions. About 13% of survey respondents received a failed inspection notice in the prior year, and 26% needed help to prepare for an annual apartment inspection.

Key Findings: Housing Stability	The HWS program successfully reached residents at risk of housing instability. • HWS staff had more contact with residents who said they needed help to prepare for an inspection: 42% of residents with a higher level of HWS contact said they needed assistance compared to 22% of residents with less HWS contact, and 16% of residents with no HWS contact ($p < .001$). • 24% of residents who had some HWS contact had difficulty passing an inspection compared to 11% of those with no HWS contact ($p < .05$).

During a 17-month period, 24% of 865 residents in 8 buildings permanently moved out of their building. Of these, 32% moved by choice, 28% moved for unknown/other reasons, 27% died, and 14% were either evicted or moved at the management's request or under duress. On average, 8 people moved and three died each month. Only 3.4% of 865 residents were evicted.

On average, 27% of respondents reported needing help to prepare for an annual apartment inspection. The number of respondents who said they needed assistance to pass an apartment inspection did not significantly change over time, and there were no significant changes based on HWS contact level.

Goal 4. Improve Residents' Quality of Life

Improving quality of life can improve overall health. The resident survey included questions about feeling anxious or depressed, mobility impairment, pain, limitations in usual activities and self-care; an assessment of social isolation risk; and use of 911 calls.

Key Findings: Quality of Life	Residents' quality of life differed based on the level of HWS contacts they had. • HWS staff had more contact with residents who said they had mobility impairments. Residents with higher HWS contacts had more mobility impairment (M = 1.70) compared to residents with some HWS contact (M = 1.53) or no contacts (M = 1.46). • HWS staff had more contact with residents who called 911. Overall, 26.5% of residents with high HWS contacts called 911 compared to only 11% of residents who had no HWS contacts ($p < .01$). • HWS staff had more contact with residents who had increased feelings of anxiety or depression during the project period ($p < .001$).

Social Isolation

The HWS partners had several outreach efforts designed to reduce social isolation. People who are socially isolated tend to have worse health outcomes compared to those who have more social connections. One example is the Give2Get program fostered by CareOregon and run by residents. As a peer-based program, residents agree to provide assistance to other residents who request assistance. Between January 2015 and March 2016, 155 residents participated in Give2Get activities. Examples include checking on a resident discharged from the hospital, pet sitting and grooming, driving to the grocery store or pharmacy, and distributing food.

Key Finding: Social Isolation	Over half—51%—of residents were assessed at risk of social isolation. HWS staff had more contacts—27—with residents at higher risk of social isolation compared to residents at low risk of isolation—23 contacts.

Residents who were at risk of social isolation, based on the number of friends and family they could rely on, fared worse than residents at low risk of social isolation. Specifically:

- 19% of residents at a high risk for social isolation reported being hospitalized compared to 12% of residents at low risk ($p < .05$).
- Residents at high risk of social isolation had a lower quality of life score--58.5—compared to a score of 72.1 for those at low risk of social isolation ($p < .001$).
- 68% of residents at high risk of social isolation had mobility problems, compared to 43% of those at low risk ($p < .01$).
- 58% of residents at high risk of social isolation had problems completing daily activities compared to 45% of residents at low risk ($p < .05$).
- 25% of residents at high risk of social isolation had problems with self-care compared to 13% of those at low risk ($p < .05$).

- 63% of residents at high risk had problems with anxiety or depression compared to 41% of those at low risk ($p < .001$).

Culturally-Specific Services

To directly address health equity, a key project goal was to increase access to health and social services among residents who had limited English proficiency and/or had issues that needed to be addressed with culturally-sensitive services. Twenty-three percent of residents spoke a Southeast Asian language, including Mandarin, Cantonese, Korean, and Vietnamese. Additional languages spoken among residents included Farsi, Russian and Spanish.

Key Findings	Non-Asian language speakers had an average of 30 HWS contacts compared to 14 contacts for Asian language speakers ($p<.001$).

Research Methods

To assess HWS program goals, this evaluation:

1. Assessed the impact of coordinated health and social services on residents' self-reported health, food access, social integration, health service use, quality of life, and building satisfaction. Two resident surveys, the first before services started in September 2014, and the second in February, 2016, were distributed to all residents in 10 apartment buildings. Over one-third of resident participated (544 completed the initial survey; 511 completed the second survey; 272 completed both surveys).
2. Summarized key lessons based on the program implementation process based on interviews with LLC members and various stakeholders, including residents.
3. Assessed the impact of coordinated health and social services on residents' health service use and costs based on insurance claims analysis for the period starting six months prior to the start of services and for the first 12 months of the program. Residents with Medicare Advantage or Medicare fee-for-service plans were excluded due to concerns that they might form a different population from the Medicaid-eligible residents. A total of 1,395 residents fit the exclusion criteria for the evaluation, of which 500 received at least one recorded service from the Housing with Services program. Raw claims data was processed into four utilization types: ED visits, non-obstetric inpatient (IP) stays, OPMH visits, and PCP visits.
4. Summarized the types of contacts that HWS staff and partners had with the building residents based on a database maintained by staff.
5. Summarized access to Medicaid-financed long-term care services based on information provided by the Multnomah County Department of Aging, Disability and Veteran Services.
6. Summarized reasons for move-outs and evictions based on information provided by the housing partners.

Although the study design attempts to account for changes over time, the timeline of deliverables to the funding agency required that some data, including the second resident survey and claims data, had to be collected while the program was still being implemented. Additional details about the research methods, including study limitations, are provided in the full report.

Key Program Lessons

This evaluation provides key findings and lessons regarding program planning and implementation and program impacts on resident health-related outcomes. Based on qualitative interviews with stakeholders and assessment of the various data sources, Table 2 summarizes lessons learned about planning and implementing housing with services for older adults and persons with disabilities.

Table 2. Key Lessons for Program Planning and Implementation

Program Planning	Implementation
Encourage and establish a structure to support partner, service provider and stakeholder involvement, including residents	On-site program staff were critical to support of and connection to outside agencies
Clearly define goals and services, and share with partners	Promote and establish a structure for ongoing communication among partners
Be flexible and adaptable to accommodate changes in revenue, public policy and external political dynamics	Provide staff orientation, training and ongoing opportunities for program feedback
Schedule time to get partner agency commitment	Create and use a shared database to support data collection, reporting, communication and tracking program impact
Agree to share information about residents across agencies within the limitations of resident privacy and HIPAA compliance requirements	Employ an Operations Manager to serve as central communications contact and to provide support/oversight of the care coordination model
Provide strong leadership from a backbone organization and key partners	Employ a mental health clinician with mental health training suited to serve this population
Promote and cultivate organizational commitment from LLC partners through Board support and regular meetings Use Interagency Agreements and MOU's to promote effective services coordination, project understanding and continuous quality improvement.	Create a structure for strong resident involvement in program development, implementation and ongoing oversight.

Executive Summary Conclusion

Portland's HWS grew from a planning group into a coordinated effort among multiple health, social, and housing agencies that resulted in positive improvements in the lives of hundreds of low-income older adults and persons with disabilities during its first 18 months of operation. The program had the most measureable impact on residents with the highest level of unmet

needs, such as those who needed medical care, mental health services, access to benefits for which they were eligible, and food.

As with other service-based interventions, meeting unmet needs can result in increased service use and costs[1]. However, as stated in a recent study of health and housing conducted by CORE[2], health services and subsidized housing have a "blended future." The reasons for coordinating services with housing include improved access to health and social services, a potential for reducing health care costs, promotion of housing stability and improving residents' quality of life. Health care providers are directed by the Affordable Care Act to know where their clients live, including whether they are homeless, at risk of homelessness, or in affordable housing. Housing is unquestionably a social determinant of health that can provide a platform for health and social services.

Housing with Services is an emerging model of community-based care. This is not a licensed health care setting, though some residents receive health services in their apartment. Residents live independently and may choose whether or not to engage in any offered services. Although it was in a developmental stage, the HWS model provides lessons in how housing and health and social service agencies can work collaboratively to coordinate and deliver services to affordable housing residents.

The buildings in this study are designated by HUD for older adults and persons with disabilities. Most of the residents will live in their home for years, or even decades, and many will do so until they die. Many residents need assistance, but housing providers do not provide or coordinate health care or long-term services and supports. This partnership among housing, health, and social service providers provides an example of collective impact that can be adopted by other communities with similar goals of promoting residents' health and the ability to age in place.

Promising directions based on the foundation established by HWS:

1. Project results documented that on-site health navigation and care coordination connected chronically ill and vulnerable residents to health and social services, resulting in improved access to some health and social services, ,especially preventative health services and food resources.
2. Shared coordination of health and services agencies with housing providers that established a foundation for supporting aging in place.
3. Systematic tracking of services and contacts can be used to evaluate program impacts and resident outcomes over time.

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[1] Foden-Vencil, C. (2016). Emergency room use stayed high in Oregon Medicaid study. *Lund Report*. https://www.thelundreport.org/content/emergency-room-use-stayed-high-oregon-medicaid-study

[2] Health in Housing (2015). http://oregon.providence.org/our-services/c/center-for-outcomes-research-and-education-core/social-determinants-of-health/housing-and-health/

4. Resident involvement in peer-based social services that increased access to food resources and might result in reduced social isolation and improved quality of life.
5. Expanded availability of culturally-specific services, especially for older adults from Southeast Asian countries who do not speak English.
6. Preliminary data indicates that HWS outreach to residents who needed help preparing for an apartment inspection, may have delayed or prevented evictions or move-out notices.

This baseline assessment provides an excellent tool for a future evaluation of HWS. As with other housing with services evaluations (see full report for details), cost savings are not likely to be realized until the third year of the program. Thus, it will be important for the HWS team to continue tracking information about service contacts that can be used in a follow-up evaluation of health so assess outcomes such as housing stability, resident quality of life, use and costs of medical, behavioral, and long-term services and supports, and housing-related costs.

HOUSING WITH SERVICES

Final Report, October 2016

Institute on Aging, Portland State University

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Acronyms and Abbreviations

CORE	Center for Outcomes Research and Education, Providence Health & Services
DADVS	Department of Aging, Disability and Veteran Services, Multnomah County
ED	Emergency department
HWS	Housing with Services
IP	Inpatient hospitalization
LLC	Limited Liability Corporation
OPMH	Outpatient mental health
PCP	Primary care provider
T1	Time 1 survey (pre-Housing with Services)
T2	Time 2 survey (16 months after HWS started)

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Housing with Services Evaluation

This evaluation was designed to assess the implementation process and impacts of a novel program of coordinated health and social services on behalf of over 1,400 residents of 11 affordable housing properties in Portland, Oregon. Affordable housing for older adults and persons with disabilities provides an important financial subsidy for persons with low incomes. To qualify for the affordable housing described in this report, individuals must have incomes of no more than $15,450 for a single person. In the U.S., over one million older adults receive housing assistance or live in a publicly-subsidized housing unit, such as an apartment funded by the Department of Health and Human Services (HUD) (Harvard Joint Center for Housing Studies, 2015). Among all HUD-assisted housing programs in the U.S., 60% of household heads are either elderly or adults with a disability (34% are elderly) (US Center of Budget & Policy Priorities, 2015). Despite the importance of rental assistance to low-income adults, housing alone is not enough for some residents who lack access to health and social resources, including a primary care provider, preventative health services, mental health services, and food.

Housing with Services Program and Goals

Studies show that low-income older adults and persons with disabilities are at a higher risk of poor health outcomes compared to those who do not have low incomes (Krieger & Higgins, 2002). Barriers to health and social services, combined with poor health, can lead to housing instability, including homelessness, and to hospitalization. However, by coordinating access to health and social services, affordable housing residents might have better health outcomes and quality of life, while using fewer expensive health services such as hospitals.

HWS was formed to address social determinants of health, such as food insecurity, social isolation, and housing instability, among a low-income population of adults living in low-income housing in Portland, Oregon. As described in the initial report (Housing With Services, 2015), what came to be known as HWS, LLC, emerged from a small group of individuals associated with housing and health providers who began meeting in 2011 to develop a strategy for coordinating services to low-income older adults (Milbank Memorial Fund, 2006).

Figure 1. Housing with Services Program Goals

1	Promote optimal use of health and social services by: improving access to health and social services, and reducing health care costs associated with emergency department use and other high-cost health services	**2**	Improve access to long-term supports and services, and delay nursing home admissions
3	Improve housing stability	**4**	Improve resident quality of life

Underlying Goal: Integrate culturally-specific services & programs

The HWS planning group went through an organizational learning process that included reviewing housing with services programs in other states, taking part in a health and housing learning collaborative sponsored by Enterprise Community Partners, reviewing literature, and conducing an initial resident needs assessment. Cedar Sinai Park took the lead on developing a demonstration project, with support from the Oregon Health Authority and several grants. In 2014, the Oregon Health Authority received a SIM grant from the Centers for Medicare and Medicaid Services. That grant paid for this evaluation as well as HWS infrastructure building and activities to support culturally-specific programs for the diverse residents in the 10 apartment buildings.

Affordable Housing Sites

The participating affordable housing properties were designated by HUD for persons age 62 or older and adults with disabilities. Residents must be capable of living independently though they may receive health-related services and supports from friends and family as well as acute and long-term services reimbursed by Medicaid or Medicare. Applicants and residents must have gross household incomes that meet the low, very-low, or extremely-low income limits for Multnomah County (Table 1). Most residents have incomes below these limits, and some have no income, thus qualifying them for Medicaid. The properties have wait lists, and eligible applicants move in based on their place on the list (with exceptions based on medical need).

Table 1. Multnomah County Income Limits for Housing Assistance, 2015

Household size	Extremely-low Income	Very-low Income	Low-income
1	$15,450	25,750	$41,200
2	$17,650	$29,400	$47,500

These properties are owned or managed by three agencies: Harsch Property Management, Reach Community Development Corporation, and Home Forward (Portland's Housing Authority). Before HWS, each participating property (Table 2) had in place a resident services employee or service coordinator available to assist residents by providing information about local resources (e.g., public benefit programs, social services, sources of discount products) and planning social and health-related events. Resident services staffing varied across buildings; two buildings had full-time staff with social work training, and another had staff hours a few hours per week.

Table 2. Participating Apartment Building Information

Owner	Building name	# of Units	Location
Cedar Sinai Park Non-profit agency	Rose Schnitzer Tower	235	Downtown
	1200 Building	89	Downtown
	Lexington Place	54	Downtown
	Park Tower	162	Downtown
Home Forward Public housing authority	Hollywood East	286	East Portland
	Northwest Towers	150	NW Portland
	Hamilton West	152	Downtown
	Rosenbaum Plaza	76	Downtown
Reach CDC Community development corporation	Bronaugh*	51	Downtown
	The Admiral	37	Downtown
	12th Avenue Terrace	118	Downtown

* This building was dropped from analysis because all residents were relocated during a renovation project lasting several months. It will rejoin the program when residents return.

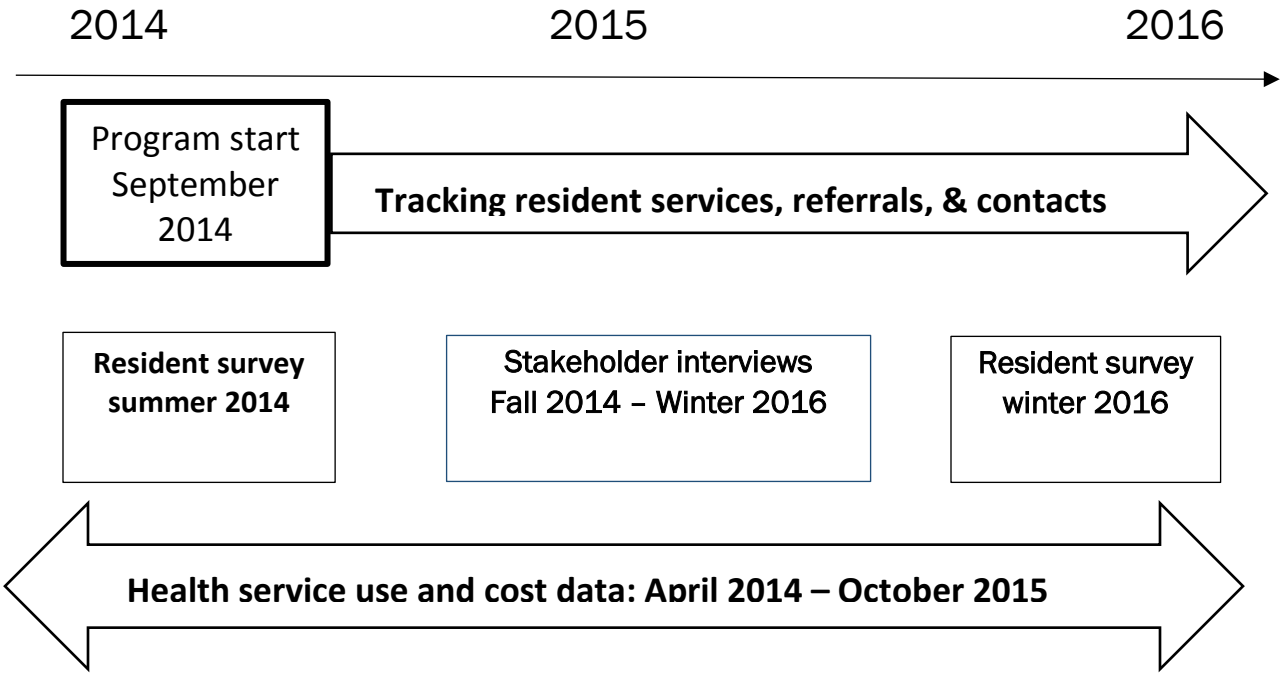
Evaluation Approach

To assess whether HWS met the goals described above, the evaluation used the following methods:

1. Two resident surveys, conducted before HWS started and 17 months later, to assess the impact of coordinated health and social services on residents' self-reported health, food access, social integration, health service use, quality of life, and building satisfaction.
2. Stakeholder interviews to identify key lessons about program implementation.
3. Analysis of over time Medicaid and Medicare claims data to assess the impact of coordinated health and social services on residents' health service use and costs.
4. Analysis of the number and types of contacts that HWS staff and partners had with the building residents.
5. Analysis of Medicaid-funded long-term care services used by building residents.

In addition to using statistical tests to assess changes over time, multi-variate analyses are used to assess differences between residents who did and did not have HWS contacts. Residents who received services are treated as cases and those who did not as a control group. See the Appendix for more details about the research methods.

Figure 2. Housing with Services Evaluation: Data Collection & Data Sources



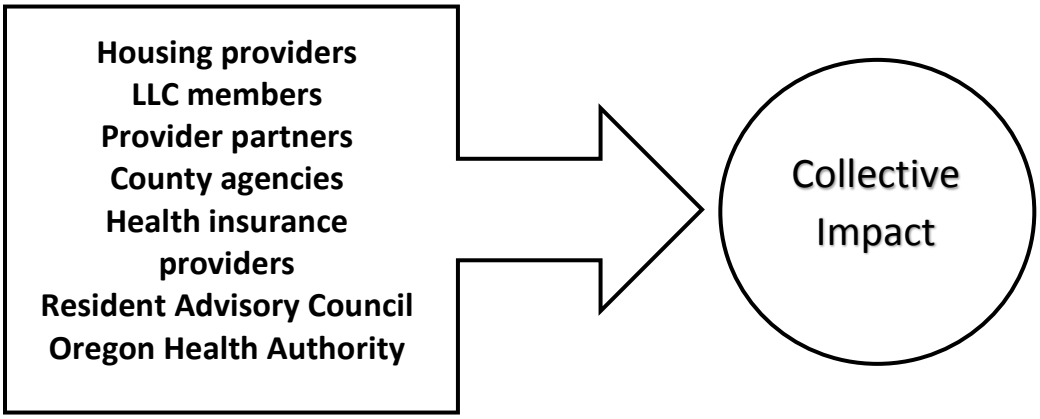
Housing with Services Program Implementation

Organizational Structure

A core group of stakeholders formed a LLC to support shared governance and decision making, and to pay the salaries of an operations director (full-time), program director (part-time), administrative support, and limited supplies. Partners contributed varying dollar amounts to the LLC. Additionally, the program coordinated with a variety of non-profit and government agencies, including the county Area Agency on Aging, health insurance providers that cover the majority of Medicaid and Medicare Advantage members in Oregon (CareOregon, Family Care, Providence), and various social and health service agencies (see Table 3).

The HWS partners sought to create collective impact to reduce health disparities among low-income adults living in publicly-subsidized housing. Collective impact (Kania & Kramer, 2011) describes how a group of providers might de-emphasize their individual organizational agendas in favor of a collective approach to a local problem. Before creating a collaborative approach, each organization provided services to subsidized housing residents, but their efforts were uncoordinated. By creating an organizational structure, including the LLC and memoranda of understanding (MOU), the group coordinated their efforts. This coordination was facilitated by on-site services. Cedar Sinai Park received a grant from the Weinberg Family Foundation to develop a clinic on the first floor of a centrally located apartment building to house the program staff, representatives from LLC partner agencies, social activity space, a medical doctor, and Providence ElderPlace.

Figure 3. Collective Impact



When a group of organizations collaborates, it needs a "backbone organization" to lead the effort (Turner, Merchant, Kania, & Martin, 2012). Cedar Sinai Park was the backbone organization during program planning and implementation. They advocated for the project, recruited partner agencies, initiated the LLC, and wrote grants that paid for the evaluation and central staff, the Harry and Jeannette Weinberg Health and Social Services Center, and various other program components, including staff positions at partner agencies.

Organizational Changes over Time

The initial set of LLC members included 9 members (Table 3). In addition, Providence PACE (Program for All-Inclusive Care for the Elderly) had on-site staff in the Weinberg center, and a medical doctor had on-site office hours. Over a period of several months, PACE and the medical doctor elected not to maintain clinic space in the Weinberg Center because the number of clients did not warrant the rental fees. In addition, Cascadia Behavioral Health discontinued the on-site visits by a behavioral health specialist. However, HWS continued to refer to these agencies any Medicaid and Medicare-eligible residents who might benefit from medical or behavioral health services. Outside In, a non-profit health and social services agency that runs a federally qualified health clinic, agreed to move into the Weinberg clinic and to offer primary care, acupuncture, and other health-related services.

To promote coordination and referrals among LLC partners and community stakeholders, the program office began holding weekly telephone calls. During these calls, housing and services providers gave brief updates, asked questions, and discussed program implementation issues.

The program evolved during the months of implementation based on results of the initial resident survey and agency staff and resident feedback (Table 4). For example, the initial survey found that 32% of residents were food insecure. Although food services had been planned, the number and type of food services and programs increased and became a program priority.

CareOregon added FoodRx[1], and HWS staff worked with property staff to coordinate food pantries and and other food resources.

Table 3. Primary Partners at Both Evaluation Time Points

2014, HSW Program Start	2016
Cedar Sinai Park (backbone organization)	Cedar Sinai Park
CareOregon	CareOregon
Home Forward	Home Forward
Reach CDC	Reach CDC
Asian Health and Service Center	Asian Health and Service Center
Jewish Family and Child Service	Jewish Family and Child Service
Sinai Family Home Services	Sinai Family Home Services
LifeWorks NW	LifeWorks NW
Cascadia Behavioral Healthcare	Outside In
Providence PACE	

To address social isolation, CareOregon added Give2Get[2] (or G2G), a peer-to-peer volunteer program that connects residents who have a skill or item to share with residents who need assistance with something—often a task like shopping, pet care, or clothing repair. Based on resident feedback, specific health screenings and clinics were added in some buildings (e.g., mobile foot clinic, flu clinic, blood pressure screening). A program designed to assist residents with medication adherence was started but discontinued due to low resident involvement. However, the clinical staff continued to advise residents about medication access and use.

Identifying Residents at Risk of Negative Health and Housing Outcomes

CareOregon staff identified at-risk residents based on referrals from neighbors or building staff who were concerned about a resident's health; referral from a health, housing, or social service agency; an inpatient or emergency department hospital encounter; CareOregon case worker referrals; and through staff follow up with a previously engaged client. Following a referral, clients might receive a visit or phone call from a CareOregon clinician or health navigator to assess the resident's current health status and need for additional support. Following an ED visit, the care navigator met the client to explain how to connect with a PCP and to assess reasons for the ED visit that could be prevented. Clinician follow-up after an ED visit has been shown to improve care and reduce health care costs (Naylor, Aiken, Kurtzman, Olds, & Hirschman, 2011).

[1] FoodRx website: http://www.careoregon.org/LearningAndInnovation/foodrx.aspx

[2] Give2Get website: http://www.careoregon.org/LearningAndInnovation/give2get.aspx

Table 4. Planned and Implemented Services

Planned, as of 2014	Implemented, as of 2015-16
Navigation / Care Coordination / Primary Care Connection Management • Person-centered, consumer directed case management / care coordination • Biopsychosocial health care management, or Interdisciplinary Team approach • Life coaching • Collaboration between providers & clients • Social work	Two health navigators who visit each building, weekly Community health workers Social services staff
Cultural Specificity • Culturally appropriate services • On site translation/interpreters services	Provided by: • Asian Health & Service Center • Islamic Social Services • Jewish Family & Child Service
Physical Health • Management of chronic conditions • Physical Therapy and Occupational Therapy • Health Screenings	Clinical staff provide some health screening and assessment; post-hospital visits Health fairs
Mental Health • Outreach and triage • Counseling, duration limited	1 LCSW onsite visits, crisis intervention, and referrals to partner agencies
Dental Health	Educated residents with dental benefits on how to access services. Referred residents who needed tooth extraction to a local clinic, and residents with infection to an international charity group.
Medication Management • Set up & reminders • Prescription education • Poly-pharmacy review	A medication adherence program was offered but discontinued due to very low resident interest. CareOregon clinicians continued to do “brown bag” reviews and advise residents on filling prescriptions.
Preventative / Holistic Health • Naturopathic • Acupuncture • Health Fairs & Flu Shot clinics • Tai Chi	Outside In, a new partner in 2016, will offer naturopathic and acupuncture. Health fairs, flu clinics and Tai Chi are offered.
Home / Mobile Health • Foot care • Wound care • Mobile physical and mental health screenings	Referred residents to services based on health insurance benefits.

Nutrition • Comprehensive nutrition programs • Meal planning, affordable meals • Consistent access • Education, demonstration classes	FoodRx provides nutrition information and food. Eligible residents connected to Meals on Wheels and food stamps. Food pantries and other food services were organized.
Transportation / Remote Access • Shuttle to/from buildings to clinic • Tele-medicine (Skype)	Informed residents about the Medicaid transportation benefit.
Volunteers and Peer Support • Peer-to-Peer support • Senior Companions / Friendly Visitors • Volunteer Coordination • Address social isolation	Resident Advisory Council and Give2Get Art classes

Addressing Social Determinants of Health

In addition to addressing residents' health care needs, HWS programs and partners addressed social determinants of health. Residents who took part in the early program planning and implementation efforts advocated for programs and services to address social needs, including community engagement, feeling self-worth, and qualify of life. Examples of programs in this category included Give2Get, FoodRx, and culturally-specific programming.

Within HWS, Give2Get uses a community empowerment model. A Leadership Council of volunteers in the 10 HWS buildings discusses needs and seeks solutions, sometimes with G2G staff assistance and sometimes independently. The group initially met concurrently with the HWS Resident Advisory Council, and eventually the two merged. FoodRx combines nutrition, food access, and community building. In collaboration with G2G volunteers, this program facilitates the weekly delivery of about 1,500 pounds of fresh food to the HWS buildings.

Culturally-specific services include Asian-language coffee hours, exercise classes, and social outings for residents who speak Mandarin, Cantonese, or Korean. These sessions begin with an exercise period followed by discussion of a health topic, followed by social meeting time. In addition, translation services and social activities for other language groups, including Russian and Farsi, were organized with community partners such as Jewish Family and Child Services and Islamic Social Services.

Evaluation Results

The evaluation summarizes findings from the various data sources described above. The results include resident demographics and health conditions, HWS use, access to health services, housing stability, resident quality of life, culturally-specific services, and summaries of stakeholder and resident interviews. As relevent in each section, we provide results for both resident surveys and claims analysis. The survey respondent sample included 544 at Time 1 (T1), 511 at Time 2 (T2), of which 272 completed both surveys. The claims analyses included residents enrolled in Medicaid or dually enrolled in Medicaid and Medicare: 1,395 residents of

whom 500 received HWS and were treated as "cases" and the remaining 895 were treated as controls.

Resident Profiles

The residents who live in the apartment buildings served by HWS are diverse in terms of age, race, ethnicity, and income, as well as by health and disability status. For example, the age range is 24 to 94, with an average age of 67. While all residents have low incomes as a condition of eligibility criteria, 14% of survey respondents said they have no income, and only 25% had incomes over $11,000 per year. The buildings are centers of racial and ethnic diversity, with a higher level of diversity than Portland as a whole. Based on survey respondents, we profile three types of residents that represent three large sub-populations: elderly, Asian immigrants, and adults with mental illness (Table 5).

Table 5. Profiles of Specific Resident Subpopulations Based on Resident Survey

	Residents age 65 or older	**Residents with a mental illness**	**Residents from an Asian country**
White Asian Black Multiracial Hispanic/Latino	53% 38% 3% 4% 2%	71% 14% 3% 9% 3%	75% Chinese 10% S. Korean 9% Vietnamese 2% Japanese 2% Filipino
Female	58%	59%	62%
Average age Age range	75 65-94	63 24-90	77 54-94
Low social isolation risk	58%	39%	71%
Mobility problems	46%	66%	35%
Difficulty with usual activities	45%	67%	44%
Difficulty with self- care	20%	27%	29%
Difficulty accessing food	23%	37%	32%
Top 5 health conditions	Hypertension, diabetes, vision impairment, asthma	Hypertension, acid reflux, sleep disorder, PTSD, asthma	Hypertension, sleep disorder, diabetes, anxiety, heart disease
Visited PCP, prior 6 months	87%	91%	88%
Went to ED, prior 6 months	24%	40%	16%
Called 911, prior 6 months	13%	23%	8%
% residents with HWS contacts. Range and average number of contacts.	60% Range 0 to 190 Av. 10 contacts	59% Range 0 to 195 Av. 19 contacts	75% Range 0 to 63 Av. 10 contacts
Sample size	n=168	n=125	n=64

Table 6 describes the respondents who completed both surveys. Tables that describe all survey respondents who completed either a T1 or T2 survey are included in the Appendix. A majority of survey respondents were women, age 65 and older, White, not married, born in the U.S., and had an annual income of less than $10,000. Notably, 23% of the respondents were Asian, thanks in part to assistance from AHSC staff who explained the study purpose and interpreted the survey for residents who requested assistance.

Table 6. Demographic Profile of Survey Respondents

Demographic		%	N
Gender	Men	45.3	116
	Women	53.9	138
	Transgender	< 1.0	2
Age	<65	38.2	168
	≥65	61.8	104
	Average	67 yrs	
Race/ethnicity	White	60.1	158
	Black	3.4	9
	Asian	24.3	64
	Multiple race/Other	9.1	24
	Hispanic, any race	3.0	8
Marital status	Married/Partnered	22.0	58
	Widowed	11.7	31
	Divorced/Separated	38.3	101
	Never married	28.0	74
Birth country	United States	72.0	175
	Non-US born	28.0	68
Primary language	English	74.7	180
	Other	25.3	61
Annual income	None	14.2	37
	$1 to $11,000	60.8	158
	≥$11,000	25.0	65

Note: Sample size = 272 matched T1 & T2 surveys.

Resident Profile Based on Claims Data

Based on claims data, the majority of residents in the control group (those who did not receive HWS) were men, compared to a slight majority of women in the cases (those who received services). The majority were under age 65 and white. The claims analysis sample, in comparison to the survey sample, was more likely to be age 64 or younger (see Table 7), with 52% under age 64.

Table 7. Demographic Profile of Residents Based on Claims Analysis

Count	Total 1395 %	Controls 895 %	Cases 500 %
Age group			
Under 45	9.9	12.7	5.0
45-54	14.0	15.2	12.2
55-59	14.3	13.2	16.0
60-64	14.3	12.9	16.8
65-69	12.0	11.1	13.4
70-74	9.4	7.6	12.6
75-79	6.4	6.3	6.6
80 and older	8.1	6.5	10.8
Missing	11.7	14.5	6.6
Sex			
Female	41.5	38.5	47.2
Male	45.8	46.1	44.8
Missing	12.7	15.4	8.0
Race			
White	59.1	57.7	62.2
Black	8.7	9.2	7.8
Asian	11.2	9.2	14.6
Other	20.9	24.0	15.4
Controls did not receive HWS; Cases did receive HWS.			

Survey Respondents' Self-Reported Diagnoses

Survey respondents were asked to select from a list any diagnoses they had received from a health care provider. High blood pressure, depression and anxiety, acid reflux, and sleep disorders were the most commonly reported health diagnoses for residents who completed both the T1 and T2 surveys (see Table 8). Problems with dental health was not asked at T1, but ranked in the top 10 at T2. Many of the top ranked conditions are sensitive to factors in the environment and, untreated, can result in acute care needs, including ED visits.

Although the survey asked respondents to include only those conditions for which they had received a diagnosis from a medical provider; it is possible that some included conditions that were not diagnosed.

Table 8. Survey Respondents' Self-Reported Diagnoses

	T1, %		T2, %
Hypertension	53.7	Hypertension	56.3
Depression	36.8	Depression	36.8
Anxiety	32.7	Sleep disorder/apnea	32.0
Acid reflux	28.7	Anxiety	27.2
Sleep disorder/apnea	27.9	Acid reflux	26.5
Heart disease	22.4	Heart disease	25.4
Diabetes	21.7	Severe dental problem	24.6
PTSD	18.0	Diabetes	23.9
Asthma	16.5	Severe vision problem	20.6
Severe vision problem	15.4	PTSD	16.9

Note: Excludes 'Other health condition(s)' ranked in Top 10 for T1.
PTSD=post-traumatic stress disorder.

Residents' Diagnoses Based on Claims Data

Residents receiving HWS contacts were more likely to be older than those who did not have contact with HWS. The age difference was most noticeable in those under 45 (12.7% for controls; 5.0% for cases) and in those over 70 (20.4% in controls; 30.0% for cases). Women were about 1.3 times more likely to receive services than men. There were diagnostic differences between cases and controls, with cases at least 1.5 times more likely to suffer from mental health conditions, and twice as likely to suffer from diabetes, hypertension, and obesity, than controls (Table 9).

The differences in diagnoses in medical conditions between the two sample types—survey respondents and claims analyses—could be due to respondents' uncertainty about their medical conditions. It is noteworthy that three of the top five medical conditions identified in the claims sample were also reported in the resident survey (asthma, hypertension, diabetes). Both datasets found that residents have multiple mental health diagnoses, with the resident survey reporting a much higher percentage of persons with depression or anxiety. As described further below, analyses of both datasets indicate the persons with a mental health condition fair worse in several outcomes.

Table 9. Resident Diagnoses Based on Claims Data

	Total N=1395 %	Control N = 895 %	Case N = 500 %	Logistic regression OR	p-value
Physical health					
Asthma	9.1	8.0	11.0	1.4	0.066
Chronic bronchitis	4.8	3.2	7.8	2.5	<0.001
Diabetes	20.3	16.7	26.2	1.8	<0.001
Hypertension	40.2	35.4	48.8	1.7	<0.001
Obesity	9.7	7.6	13.6	1.9	<0.001
Mental health					
Affective disorder	18.1	15.9	21.6	1.5	0.009
Bipolar	3.4	2.9	4.4	1.5	0.144
Depression	11.7	10.2	13.8	1.4	0.041
Schizophrenia	5.5	3.9	8.2	2.2	0.001
Paranoid states	1.8	1.3	2.6	2.0	0.094
Psychological disorder	8.5	7.1	10.8	1.6	0.019

Note: Confidence intervals are available upon request. OR=odds ratio

Residents' Use of Housing with Services, LLC

The HWS project team and partner agencies provided and coordinated a wide ranges of services/contacts tracked in a database called FamilyMetrics™ purchased by HWS, LLC. Partner agencies had data use agreements (DUA) that allowed them to enter and share information about resident services/contacts using password protected and secure computers kept in the Weinberg Clinic. The team tracked 24 service categories (see Appendix for list) created by the project team with input from partner agencies. We used these categories to summarize the types of services used, frequency of use, and resident characteristics associated with service use. In addition to service types, information was logged about date of service/contact, referral source (e.g., self, HWS staff, partner agency, unknown), referral to outside agency if any, and staff contact.

The date range for services/contacts summarized for this report was September 3, 2014 to January 19, 2016. During this time period, 14,465 services/contacts were logged on behalf of 686 residents. Some residents had only one service/contact, while others had many, including at least one resident with over 300. The most and least frequently used services are described in Table 10.

Figure 4. Count of Residents Using Housing with Services, September 2014 to January 2016

686 residents		14,465 HWS contacts

Table 10. Most and Least Used Housing with Services Support Categories

Most Used	Least Used
Benefits/insurance access	Legal assistance
Information and referral	Family support
Healthcare services	Lease education
Mental health services	Employment
Isolation intervention	Fair housing
Monitoring services	
Outreach	

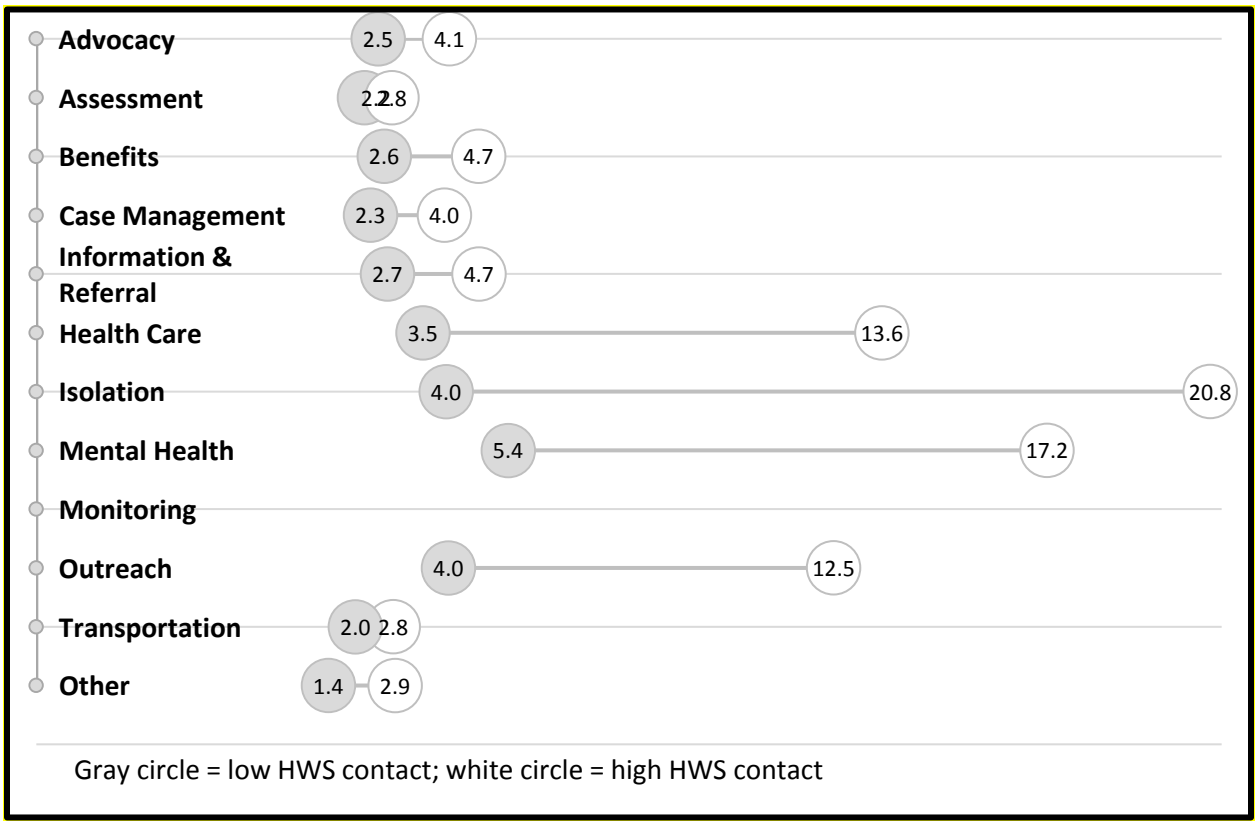
Among residents who completed both surveys (T1 and T2, n = 272), 19% had 24 or more contacts with HWS coordinators, 40% had fewer than 24 contacts, and 41% had no HWS contacts (Table 11). For analytic purposes, we used this categorization to distinguish those who were "high utilizers" of services/contacts from those who were "low utilizers" and those who received no recorded HWS services.

Table 11. Level of HWS Contact Among T1 & T2 Survey Respondents

No contact	Low utilizers	High utilizers
41%	40%	19%

For each HWS category, we assessed the types of services/contacts received by high versus low utilizers (Figure 5). High utilizers had more contact with HWS than low utilizers on the following: advocacy, benefits, case management, information and referral, health care, isolation, mental health, monitoring, outreach, transportation, and various other reasons. Only high utilizers received employment assistance (M = 2.00, SD = < .01, n = 2) and fair housing assistance (M = 2.00, SD = < .01, n = 6). There were insufficient cases to test for significant differences on lease issues, legal issues, and building transfer assistance.

Figure 5. Mean Services/Contacts Among Low & High Service Users (from HWS Database)



Survey Respondents Use of and Knowledge of Housing with Services

The T2 survey asked whether the resident had used any of a list of HWS programs. Program staff names were included in case residents were more familiar with people than programs. Of all respondents who completed a T2 survey, 64% used at least one service (Table 12).

Table 12. Survey Respondents Use of HWS

Attended a HWS event/used a service	**64%**
Have heard of HWS	**29%**

The HWS team chose not to "brand" the program name based on feedback from the Resident Advisory Council and other stakeholders that there were too many different service providers for residents to track. Instead, they emphasized service partners and individual providers. Despite this, 29% of residents had heard of HWS.

Promote Optimal Use of Health and Social Services

Goal 1	Promote optimal use of health and social services

Improving access to health and social services is a national and state health policy goal. While much policy attention has been paid to the "overuse" of EDs, a more important health policy goal is to promote optimal use of services, including EDs, as needed (Billings & Raven, 2013). To understand the impact of the HWS program on residents over time, we assessed whether survey respondents had improved access to one of several health and social services: seeing a new doctor, access to a primary care clinic, food resources, flu vaccinations, preventative health screening, long-term services and supports coordinated by Multnomah County Aging, Disability and Veteran's Services. In addition, the survey included several questions about what individuals do when they feel sick. The claims analyses examined utilization of a primary care provider and outpatient mental health services.

Access to a Primary Care Clinic

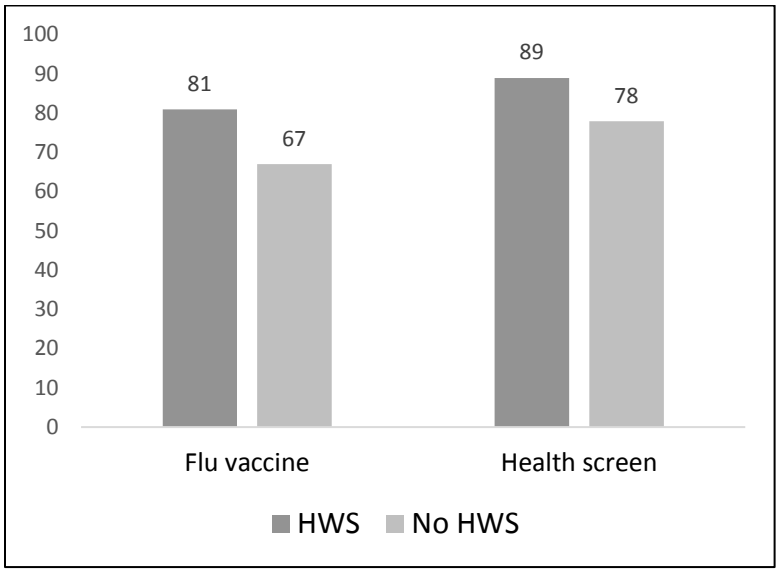
The survey asked whether the individual had one doctor's office, clinic, or health center they usually visited when sick. The HWS team had more contacts with residents who indicated they had access to a clinic. Ninety-one percent of high HWS contact individuals had a primary care clinic compared to 80.7% of those who had no contact with HWS ($p < .05$). Those who had some contact with HWS were more likely (92.1%) than those had no HWS contact to have a primary care clinic ($p < .01$).

Access to Preventative Health Services

Key Finding	Survey respondents who had HWS contacts were more likely to use preventative health services. • 91% of HWS users reported they had access to a primary care clinic, compared to 80.7% who did not use HWS ($p < .05$). • 80% of residents got a flu vaccine in 2016 compared to 69% in 2014. Residents who had some HWS contact were more likely to have a flu vaccination. • 89% of residents who had some HWS contact reported more preventative screening (e.g., blood pressure checks, colorectal exam, mammography) compared to 78% residents with no HWS contact.

There was a statistically significant increase in the percentage of respondents who received a flu vaccination in the prior 12 months (Figure 6): 80% of residents at T2 compared to 69% at T1 ($p < .01$). In addition, more residents who had some HWS contact reported flu vaccinations (80.6%) as compared to those with no HWS contact (67.4%).

Figure 6. Percent of Survey Respondents Receiving Preventative Health



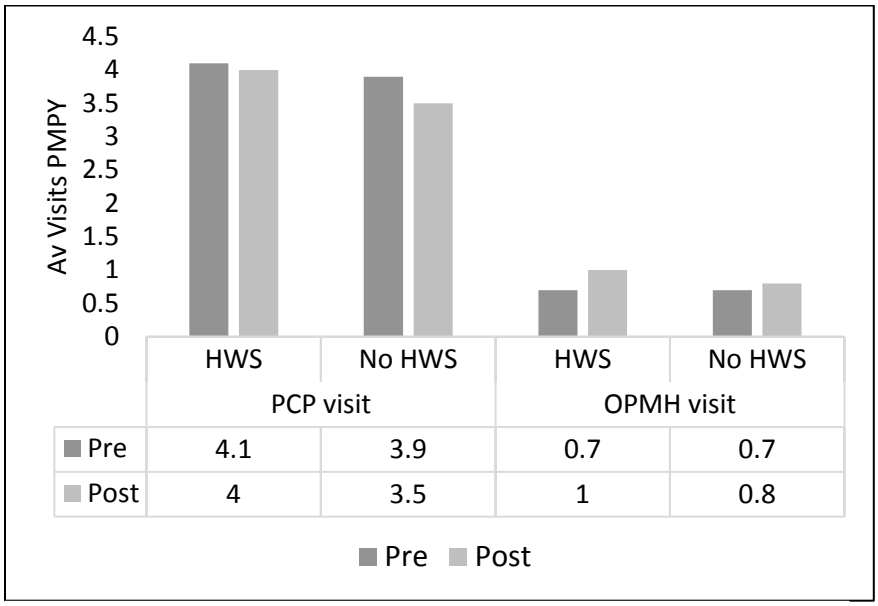
HWS staff also had more contacts with residents who had a preventative health screening (e.g., blood pressure checks, colo-rectal exam, mammography) in the prior year. Of those who had a screening, 88.6% had some HWS contacts compared to 77.8% who had no HWS contact. The rate did not increase over time.

Access to Primary Care and Outpatient Mental Health Based on Claims Data

Key Finding: OPMH	Outpatient mental health use increased among residents with HWS contacts. The OPMH use rate was 1.0 visits PMPY among HWS contacts compared to .80 visits PMPY for residents with no HWS contacts.

A Difference-in-Differences (DiD) analysis was conducted for four health service utilization types (primary care, outpatient mental health, inpatient hospitalization, and ED) to identify true program effects. DiD analysis assesses whether the pre-post change in utilization or cost among the cases (i.e., those who used services) is different from the pre-post change in utilization or cost for the controls (i.e., those who did not use services). The pre-intervention period (with a time buffer allow for program effect) was 04/01/2014 to 01/10/2014, and the post-intervention period was 01/10/2014 to 10/31/2015. The results of the adjusted DiD analysis show small program effects across all utilization types (Figure 7).

Figure 7. Pre/Post Av # of PCP & OPMH Visits Based on Claims Data



Note: Visits are measured as per member per year (PMPY).

Claims records indicate that residents who had at least one HWS service/contact had higher utilization of outpatient mental health (OPMH). Visits to PCPs remained about constant, for both groups over time, with a slight reduction in PCP events among the controls. Although these effects are non-significant, they suggest a trend towards more optimal utilization of health care.

Social and Health Profiles Among Residents with a Mental Health Diagnosis, over Time

Key Finding	On nearly every measure, survey respondents who reported a mental health (MH) diagnosis fared worse, compared to those who did not report a mental health diagnosis. • Residents with a MH diagnosis had 32 HWS contacts compared to 20 contacts on average among residents without this diagnosis ($p < .05$). • 91% of residents with a MH diagnosis reported at least one visit to a primary care clinic compared to 84% of those without a MH diagnosis ($p < .05$).

Research indicates that persons with a mental health diagnoses have, on average, worse health outcomes compared to those who do not have a mental health condition. Approximately 45% of all respondents had at least one mental health diagnosis (e.g. anxiety, depression, or schizophrenia). Similar to residents who were socially isolated, residents with a mental health diagnosis rated their health and overall quality of life lower, reported more problems with mobility, pain, feeling anxious or depressed, and ability to manage self-care and daily activities. More residents with a mental health diagnosis were food insecure, reported they used an ED,

were hospitalized, called 911, and visited a PCP, compared to residents who did not have a mental health diagnosis.

Hospital Use

Key Finding	HWS successfully engaged with residents whose health needs were greater both before the program was implemented and over time. • Based on claims analyses, in the 6 months before HWS began, both inpatient hospital and ED use were higher among residents who later had HWS contact, compared to those who did not. • Based on claims analyses, ED visits went down slightly among HWS users, from .722 to .711 PMPY (n.s.) • HWS staff had more contacts with 256 survey respondents who said they had an ED visit in the prior 6 months. Overall, 45% of respondents who had a high level of HWS contacts visited the ED, compared to those with low (31%) and no HWS contact (20%) ($p < .01$). • HWS staff had more contacts with survey respondents who said they were hospitalized overnight. Overall, 26% of those with a high level of HWS contacts were hospitalized overnight compared to 13% of those with low and 12.5% of those with no HWS contacts ($p < .05$).

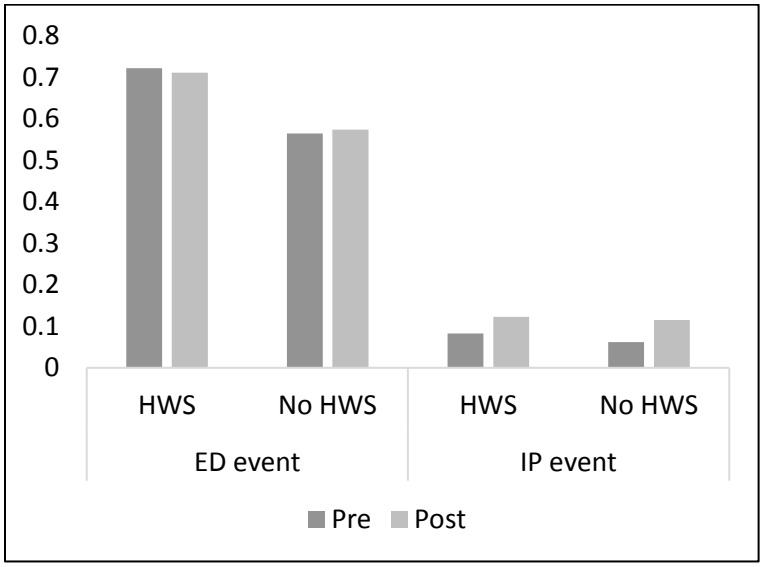
Survey respondents were asked whether they had an ED or overnight hospital visit in the prior six months. Nearly 32% of 256 respondents reported at least one ED visit. HWS staff had more contacts with those who said they had an ED visit--45% of surveyed residents who had high HWS contact reported an ED visit. In contrast, 31% of residents with low HWS contact ($p < .01$) and 20% with no HWS contact ($p < .001$) had an ED visit. In comparison, 45% of residential care facility residents (age 18-89) whose services were paid by Medicaid had an ED visit in the prior 12 months (Carder et al., 2015).

The HWS staff had more contacts survey respondents who said they were hospitalized at least once in the prior six months. Approximately 26% of those with a high level of HWS contact were hospitalized at least once, and this was significantly different than the 13% who had a low level of HWS contact, and the 13% who had no HWS contact. These findings make sense given that HWS made referrals to hospital care for residents who needed it and because HWS clinicians attempted to visit all residents who were discharged from a hospital. In comparison, 7% of residential care and 16% of adult foster care residents whose services were paid by Medicaid had a hospital stay in the prior year (Carder et al., 2015).

The overnight hospitalization rate did not change over time for either HWS contact group. However, the survey respondents with no HWS contacts reported a decrease in overnight hospitalization, from 17% to 8% ($p < .05$). Based on claims analysis, the residents who had any HWS contacts had a higher rate of inpatient hospital and ED use before HWS began, compared

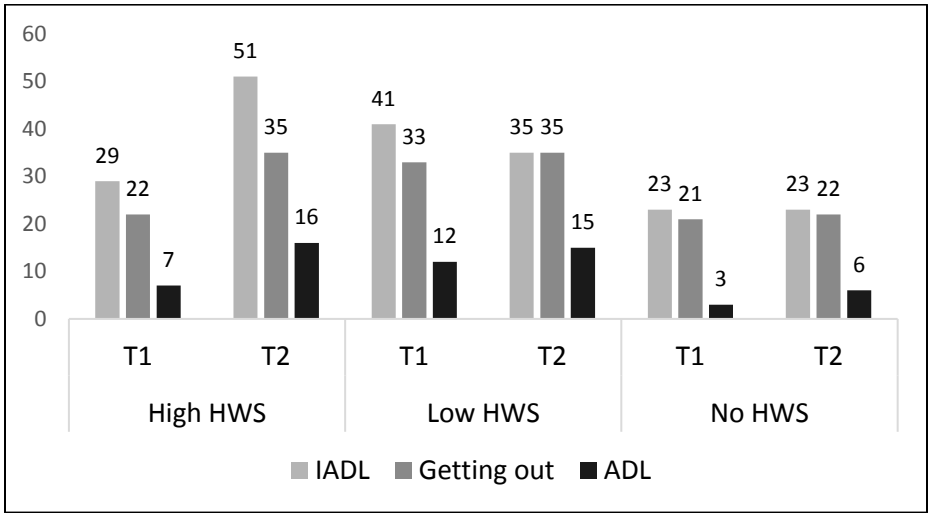
to residents who did not have HWS contacts. Figure 8 highlights small program changes, but these are not statistically significant.

Figure 8. Pre/Post Av. # of ED and Hospital Events, Claims Data



Assistance with Supportive Services

Figure 9. Percent of Survey Respondents Receiving Support over Time



The survey asked whether residents received assistance from friends/family or an agency to manage activities of daily living (ADL, bathing, dressing), instrumental activities of daily living (IADL, preparing meals, shopping, cleaning), getting out of the building, and money management (Figure 9). HWS staff had more contact with survey respondents who said they needed assistance with these supportive services. Although the differences were not significant, HWS staff had more contact with residents whose use of supportive services

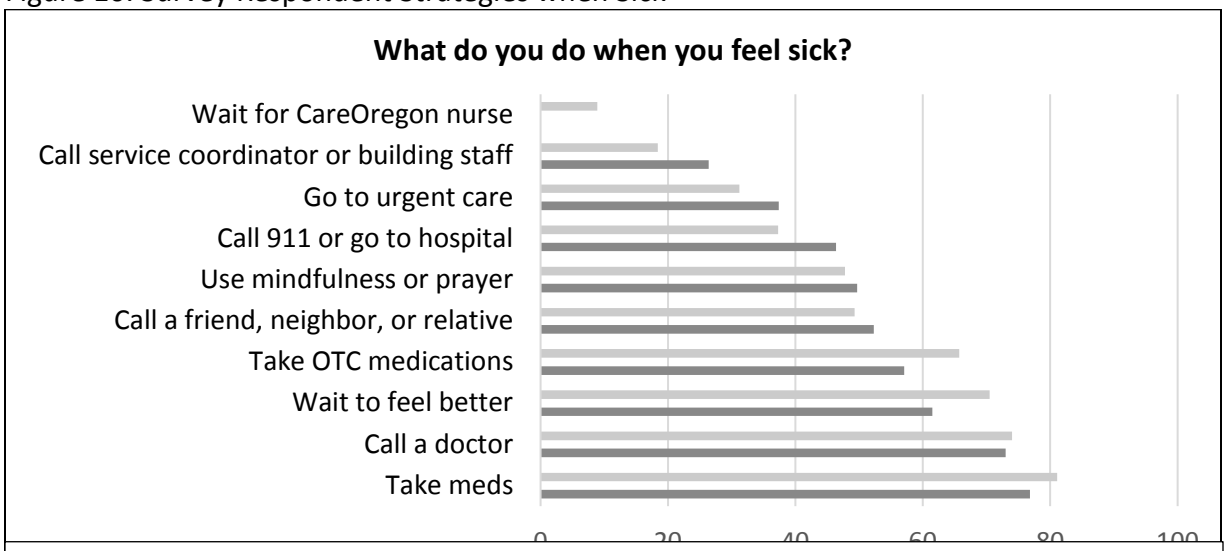
increased, especially for IADLs and getting out. This suggests that HWS staff might have connected residents to additional supports over time, though future analyses could confirm these activities.

How Residents Deal with Illness

Key Finding	T2 survey respondents were less likely, compared to T1 respondents, to report calling 911, going to the hospital, calling the service coordinator or building staff, and going to an urgent care clinic, when sick.

Survey respondents were asked what strategies they used to deal with an illness. The most common strategies were: take medication, call a doctor, or just wait to feel better. Less than one-third at both time points called the service coordinator or building staff (Figure 10). Notably, 9% waited until a CareOregon nurse was in the building (T2 only). The percent of residents who would call the building service coordinator, go to urgent care, or call 911 decreased between T1 and T2.

Figure 10. Survey Respondent Strategies when Sick



Note: This chart includes all survey respondents at both T1 and T2. Percentages reflect those indicating 'yes' relative to the total number responding to each item.

Survey Respondents Who Changed Doctors in the Prior Year

The T2 survey asked if residents began seeing a different doctor in the prior year. HWS staff had more contact with those who reported seeing a new doctor. Among these residents, 28.9% had a high level of HWS contact, 22.2% had a low level, and 16.2% had no HWS contact. While these differences were not statistically significant, the higher proportion of residents seeing a new doctor among those with a higher level of HWS contacts suggest that the program engaged with residents who saw a new doctor, for any reason.

Summary of Health Service Use

As noted above, based on both claims data and survey data, the HWS staff had a higher level of contact with residents who had higher utilization of health services, compared to residents who did not have HWS contacts. Residents who had HWS contacts consistently had higher utilization than residents with no contacts, even before the program was implemented. This pattern also holds true for PMPM costs, but as claim costs vary greatly within the four utilization types, this pattern is less clear. A general trend towards the slightly higher costs among residents with more HWS contacts is negligible in all four utilization types.

Matching the two resident groups (those with and without HWS contacts) on diagnostic groups available in claims data was only partially successful in addressing the imbalance between the two populations. Baseline statistics suggest that the residents receiving services are more chronically ill than the controls, and while the matched population was closer to the diagnostic profile of the cases, they were still not a balanced match.

The PMPY (per member per year) utilization means show how removing outliers and matching the two resident groups evened out the imbalances. This is most notably seen in ED visits where residents with HWS contacts utilization is much higher than that of residents with no contacts before matching (1.389 versus 0.994) than it is after matching (0.722 versus 0.565). A future study could randomize residents into treatment and control groups, or include buildings not involved in the demonstration program as controls to attempt to overcome the challenges associated with assessing HWS program effects.

Based on claims, residents who had any HWS service/contact had higher utilization of ED and IP hospitalization before program implementation. Overall, these data suggest that HWS successfully engaged with residents whose health needs were greater both before the program was implemented, and over time.

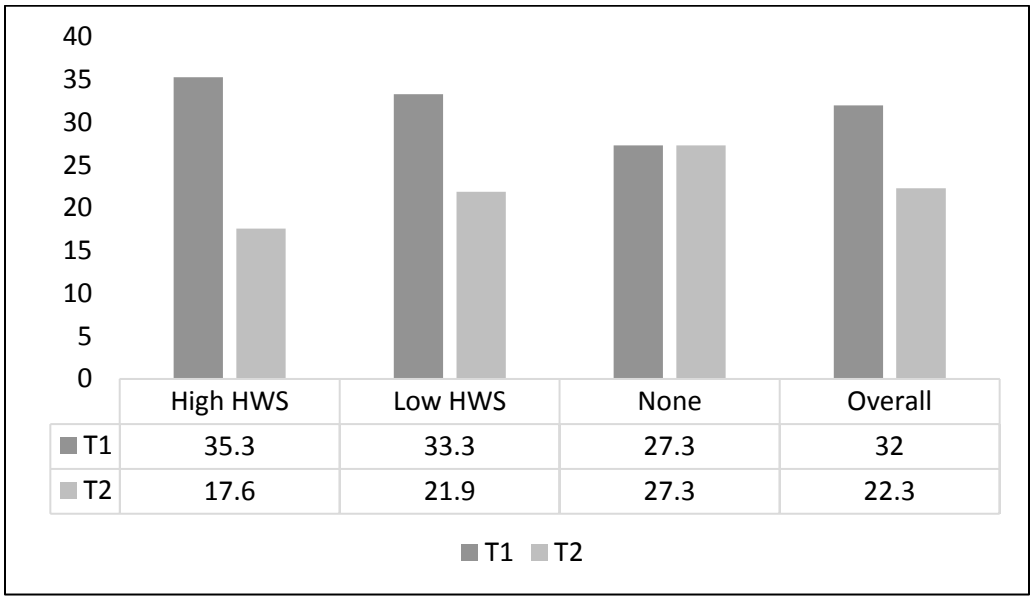
Survey Respondents' Food Access

Key Finding	Survey respondents who had HWS contacts reported far less food insecurity compared to residents with no contacts, over time. • Food insecurity decreased by 50% among residents with a high level of HWS contact, and by 34% among those with a lower level of contact. • Food insecurity was higher among residents with a mental health diagnosis (40%) compared to those without this diagnosis (19%, $p < .001$). • 27% of residents at high risk of social isolation were food insecure compared to 19% of residents at low risk (approaching significance).

Access to food is a social determinant of health. Adults with disabilities and those with mental health conditions are more likely to be food insecure compared to adults who do not have a disability (National Council on Aging, 2015) or mental illness (Tarasuk, Mitchell, McLaren, & McIntyre, 2013). The largest decrease in food insecurity was among respondents who had a

high level of HWS contact—food insecurity decreased by 50% for residents with high HWS contacts compared to a 34% decrease among residents with a lower level of HWS. These differences were statistically significant (see Figure 11).

Figure 11. Percent of Survey Respondents who were Food Insecure, over time & HWS Contact



Access to Long-Term Services and Supports

Goal 2	**Increase Access to Long-Term Services and Supports**

Key Finding	The number of Medicaid-eligible residents with HWS contacts received LTSS increased during the program period.

Research shows that LTSS can forestall or prevent moves into more expensive nursing facilities (Stone, 2015). Most of the approximately 1,400 residents in the participating buildings are eligible for Medicaid-financed long-term services and supports (LTSS) managed by Multnomah County's Aging, Disability, and Veteran's Services Division (ADVSD). At the start of the HWS program (Fall 2014), 1,163 Medicaid-eligible residents resided in the buildings. Of these 1,163 Medicaid-eligible residents, 219 (18.8%) were receiving LTSS—usually an aide who assists with tasks such as shopping, preparing meals, and personal care (e.g., bathing, dressing). These 219 residents represented 15.6% of all 1,400 residents. As of July 2016, 1,019 Medicaid-eligible residents lived in the participating buildings; the residents receiving Medicaid-financed LTSS represented 21.2% (n=216) of Medicaid clients and 15.4% of all residents.

To assess differences between October 2014 and July 2016, we looked at services received by 276 matched Medicaid-eligible residents who had a HWS contact. Most, 91.7% still lived in the building, 2.9% moved to community-based housing, 2 moved to a nursing facility (.7%), 1

person became homeless (.3%), and the remaining 4% either moved out of the ADVSD system or died. Of these 276 residents, 5.8% moved from being eligible for services to receiving LTSS. Based on these preliminary numbers, it is premature to estimate potential cost savings. However, if HWS delayed nursing facility entry, the cost savings would be significant. Monthly Medicaid based rates in 2016 are $1,405 for residential care, $1,371 for adult foster care, and $8,432 for nursing facility care. In comparison, homecare workers rates are $14.00 per hour.

While delaying or preventing moves to a nursing facility was a HWS goal, HWS staff noted that some residents would likely benefit from moving into either community-based care or a nursing facility because they were failing to thrive, falling, and mixing up their medications. Based on the T2 survey, 37% of 511 residents reported falling, and 44% of the 441 residents who take prescription medicine said they sometimes or often had difficulty remembering to do so. According to HWS staff, some residents were not sure how to access LTSS and others did not want to leave their apartment regardless of how difficult things were for them.

Oregon's eligibility criteria for Medicaid-financed community-based or nursing facility care require that the individual need assistance from another person because of impairments in mobility, eating, continence or toileting, and cognition/behavior. Assessing eligibility is done by a qualified DHS employee, so it is not possible to accurately estimate the number who would qualify. However, 21% of residents indicated they had some problems with dressing, bathing, and grooming.

Housing Stability: Who Moved and Why

Goal 3	**Improve Housing Stability**

Housing stability is a social determinant of health (Bostic, Thornton, Rudd, & Sternthal, 2012). Homelessness is the most extreme example; other examples include not being able to maintain one's home, and eviction. In publicly-subsidized housing, residents who fail an inspection or lease violations might be asked to move; repeated failures could result in eviction.

Key Finding	The HWS program successfully contacted survey respondents at risk of housing instability. • HWS staff had more contact with those who said they needed help to prepare for an inspection: 42% of residents with a higher level of HWS contact said they needed assistance compared to 22% of residents with less HWS contact, and 16% of residents with no HWS contact ($p<.001$). • 24% of residents who had some HWS contact had difficulty passing an inspection compared to 11% of those with no HWS contact ($p<.05$).

On average, approximately 27% of residents reported needing help to prepare for an annual apartment inspection. Forty-two percent of residents who had a higher level of HWS contact needed this help, compared to 22% of residents with a lower level of HWS contact and 16% of

those who had no HWS contact. This suggests that the HWS program successfully reached at least some residents who were at risk of housing instability.

Three other questions asked if the resident had received a notice about a failed inspection (T2), trouble passing an inspection (T2) or having failed an inspection in the prior two year (T1). There was not a statistically significant difference among HWS contact groups on the number of respondents receiving a letter regarding a failed apartment inspection—approximately 13% of all respondents reported receiving a notice of failed inspection.

Table 13. Survey Respondent's Self-Reported Housing Inspection Problems

	High HWS		**Low HWS**		**None**		**Overall**		
	%	N	%	N	%	N	%	N	Sig.
Ever had trouble passing an inspection (T2)	11.5	52	25.0	108	12.6	111	17.3	271	*L-H, L-N
Received letter in past year about a failed inspection (T2)	9.6	52	18.5	108	10.0	110	13.3	270	ns
Failed inspection in past two years (T1)	15.7	51	23.8	105	10.9	110	16.9	266	*L-N

*p < .05; H = High use, L = Low use, N = None

At T1, there was a statistically significant difference between HWS contact groups on having failed an apartment inspection in the past two years ($p < .05$), as shown in Figure 13. Survey respondents who had some HWS contact were more likely to say that they had difficulty passing an inspection (23.8%) as compared to residents with no HWS contact (10.9%) group. There was not a statistically significant difference between the low and high HWS contact groups at either time point; the rate at which they experienced failed apartment inspections was similar. At T2, 23% of low HWS contact respondents had difficulty passing an inspection, as compared to the high HWS contact (11.5%) and no HWS contact (12.6%) groups.

Another way to understand housing stability is to look at resident moves from an apartment building. Information about move-outs and deaths was received for eight buildings between July 1, 2014 and January 1, 2016. During this 17-month time period, 207 of 865 residents permanently left the building (24%). On average, 8 people moved and three died each month. Of these 207 residents who permanently left their building, 32% moved by choice, 28% moved for unknown/other reasons, 27% died, and 14% were either evicted or moved at the management's request.

Evictions appear to be rare—3.4% of 865 residents overall were evicted based on information provided by 8 participating properties. However, this number does not account for those who might have been advised to leave or who moved because an eviction was likely to occur.

Property managers have eviction prevention strategies, including informal conversations between resident and management, notices, warning letters, and failed inspection letters. Depending on the issue, residents have an opportunity to correct the violation, such as by hiring a housekeeper to clean the apartment or resolving conflict with neighbors. This study did not have access to pre-eviction notices and so cannot account for evictions that were prevented. Based on the HWS dataset, nine of the 686 residents who had a HWS service/contact received eviction prevention services, though the results of these efforts were not provided.

The above information has limitations. First, two properties did not provide reasons for moves and were treated as unknown/other. The dates of moves or deaths were unavailable, so we could not compare the rate of moves over time or to assess the impact of HWS on moves.

Property owners and managers are also affected by housing instability—they have financial costs associated with resident moves. These costs may include cleaning, maintenance, repairs due to damages or normal use, appliances, utilities, administrative costs associated with paperwork, and other expenses. Depending on the size and location of the apartment building, turnover costs can vary widely. Using 2014 data provided by the Housing Development Center (Housing Development Center, 2016) in Portland, Oregon, the average turnover cost for affordable housing properties in Multnomah County is $1,503, ranging from $774 to $2,025. If HWS limited the number of moves, the cost savings could be important to property owners.

Quality of Life

Goal 4	**Improve Resident Quality of Life**

Key Finding	Survey respondent's quality of life differed based on the level of HWS contacts they had. • Residents with higher HWS contacts had more mobility impairment (M = 1.70) compared to residents with some HWS contact (M = 1.53) or no contacts (M = 1.46). • HWS staff had more contact with residents who called 911. Overall, 26.5% of residents with high HWS contacts called 911 compared to only 11% of residents who had no HWS contacts ($p < .01$). • HWS staff had more contact with residents who had increased feelings of anxiety or depression during the project period ($p < .001$).

The resident survey included several questions to assess quality of life (feeling anxious or depressed, mobility impairment, feeling pain and ability to do usual activities and self-care), social isolation, self-rated health, and resident calls to 911. In the following analyses we

assessed differences between residents who completed both surveys, based on three HWS service categories (high/low/none).

There were statistically significant differences between T1 and T2 for residents who had a HWS service/contact on the following quality of life measures: feeling anxious or depressed, mobility impairment, and 911 calls. However, there were no statistically significant differences between T1 and T2 for residents who had a HWS service/contact on the following quality of life measures: pain, limitations in usual activities, problems with self-care, self-rated health, and overall quality of life.

The Give2Get program was established in part to reduce social isolation and promote community engagement. The program counted 155 residents participating between January 2015 and March 2016. This included 50 residents who had 1:1 exchanges, in which those who directly gave an asset skill also received a service. Other residents either received or assisted with a service or task. Examples of exchanges include checking on a resident who just returned from the hospital, pet sitting and grooming, driving to the grocery store or pharmacy, and distributing food.

Survey Respondents' Feelings of Anxiety or Depression

Feelings of anxiety or depression remained stable for those who had high or no HWS contact. However, HWS staff had some contact with residents who reported increased feelings of anxiety or depression ($p < .001$). This suggests that HWS successfully reached at least some individuals whose quality of life was negatively affected by these feelings.

Survey Respondents' Problems with Mobility

HWS staff had more contact with residents who reported more mobility impairment ($M = 1.70$) compared to residents with some ($M = 1.53$) or no HWS contacts ($M = 1.46$) ($p < .05$).

Survey Respondents' 911 Calls

Survey respondents were asked whether they had called 911 in the past six months. Although we do not know the reason for these 911 calls, we expect that residents call 911 when either they or someone they know has a serious problem that affects qualify of life. HWS staff had more contacts with residents who made at least one 911 call (26.5%) compared to residents with no HWS contacts (10.7%, $p < .01$). There was not a statistically significant change in the number of 911 calls from T1 to T2, and no changes within either HWS contact group over time.

Social Isolation

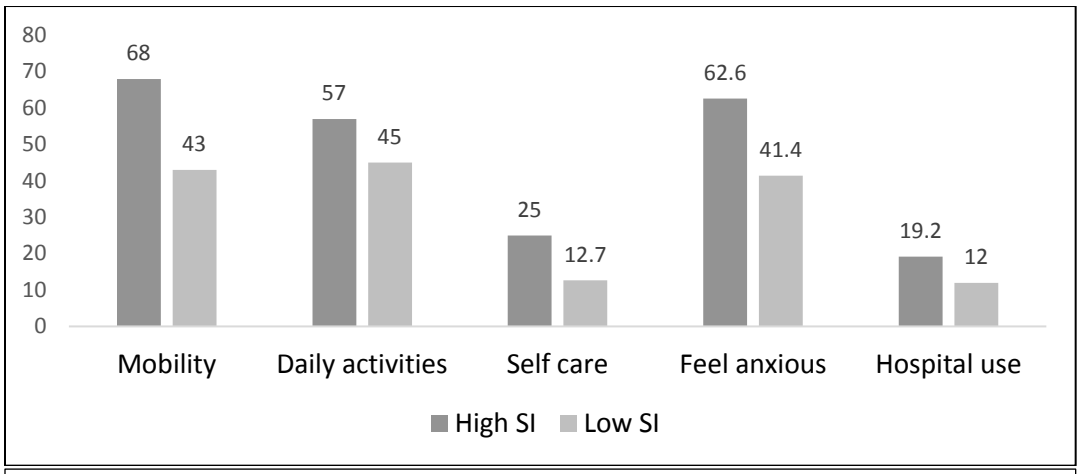
Social isolation is a public health concern that is difficult to solve. The below findings match what we heard from stakeholder interviews and from partner agency staff during HWS program planning—that residents who are socially isolated have more problems than those who are more engaged with friends or family. The HWS team is actively working to identify residents who are socially isolated, and had more contacts with these residents. Thus, social isolation and related health problems might decrease over time as the program develops.

Figure 12. Patterns of HWS use by Social Isolation Risk

51%	**27**	**23**
Residents at risk of social isolation	**HWS contacts among residents at risk**	**HWS contact among residents not at risk**

Residents at high risk of social isolation rated their health worse (M = 2.61) compared to those at low risk of social isolation (M = 2.96; p < .01; see Figure 12). Residents at high risk of social isolation rated their quality of life lower (M = 58.5) than those at low risk (M = 72.1; p < .001).

Figure 13. Percent of Survey Respondents Reporting Problems, by Social Isolation Risk



SI=social isolation. All differences statistically significant (p < .05 for mobility, daily activities, self-care, and hospital use; p < .001 for anxiety/depression).

These findings are important because people who rate their health as poor are more likely to experience poor health. Residents with a higher social isolation risk reported more problems compared to those with low social isolation risk on the following: mobility, completing daily activities, self-care activities, and feeling anxious or depressed (Figure 13).

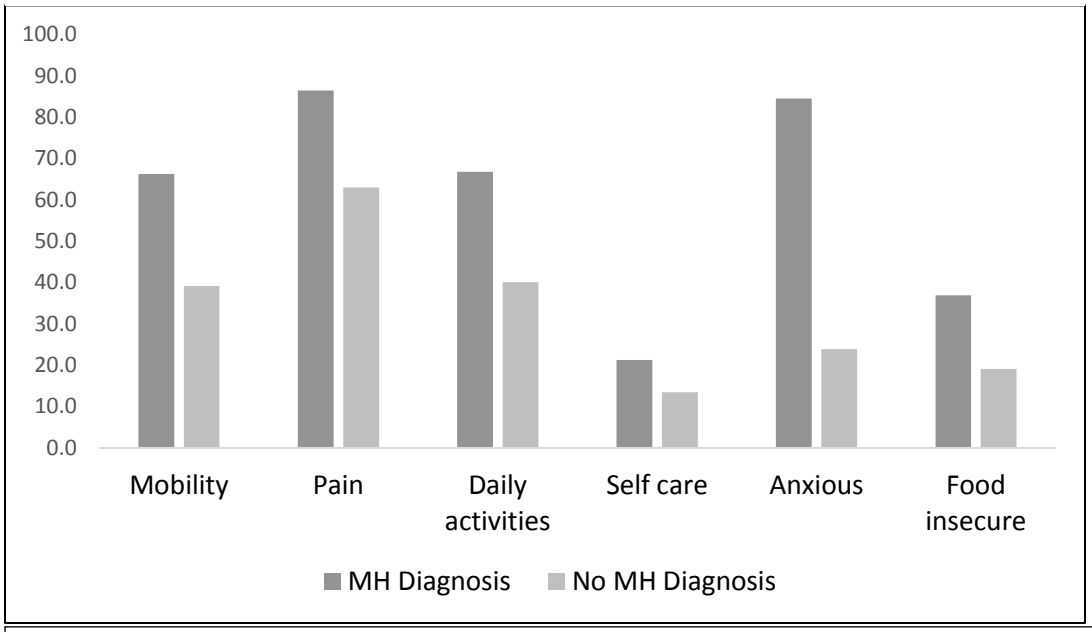
Survey Respondents' Self-Rated Health, Quality of Life, Health-Specific Quality of Life

There was a statistically significant overall difference between survey respondents who did and did not report a mental health diagnosis on self-rated health (p < .001). Those with a mental health diagnosis rated their health less well (M = 2.49) than those without a mental health diagnosis (M = 3.04).

Overall quality of life remained fairly stable over time among those both with and without a mental health diagnosis, and quality of life overall did not change over time. The average quality of life score for all T1-T2 respondents was 65 on a 100-point scale. Residents who

reported a mental health diagnosis rated their quality of life as lower (M = 58.56) compared to those without a mental health diagnosis (M = 71.77; p < .001; see Figure 14).

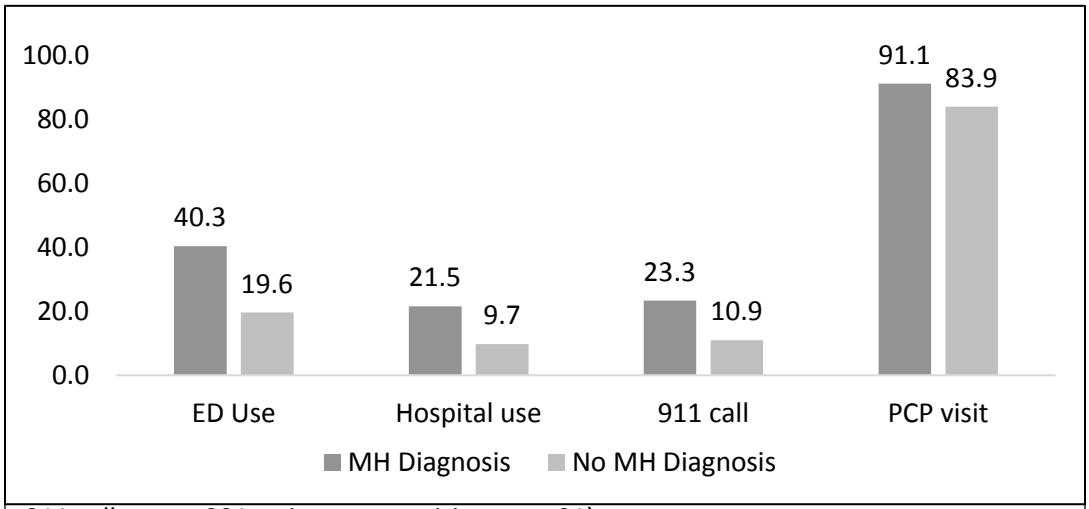
Figure 14. Percent of Survey Respondents with QOL Problems, by Mental Health Diagnosis



QOL = quality of life. MH = mental health. All differences are statistically significant (mobility, pain, daily activities, anxiety/depression, and food insecurity at p < .001; self-care at p < .01).

Hospital and Primary Care Use among Survey Respondents with Mental Health Diagnosis
Survey respondents with a mental health diagnosis reported more ED use, overnight hospital stays, and 911 calls, compared to those who did not have this diagnosis. However, residents with a mental health diagnosis reported more visits to a primary care provider (Figure 15).

Figure 15. Survey Respondents' Hospital and Primary Care Use by Mental Health Diagnosis



911 call at p < .001; primary care visit at p < .01).

Culturally-Specific Services

Key Findings	Non-Asian language speakers had an average of 30 HWS contacts compared to 14 contacts for Asian language speakers ($p < .001$).

One goal of HWS was to increase access to health and social services among residents who did not speak English, such as immigrants from other countries. Twenty-three percent of survey respondents spoke a Southeast Asian language, including Mandarin, Cantonese, Korean, and Vietnamese. Because these individuals represented the largest non-English language group in the buildings, we analyzed differences between Asian language and non-Asian language speakers. Asian-language speakers had an average of 14 contacts with HWS staff, compared to an average of 30 contacts among non-Asian language speakers ($p < .001$).

Asian language speakers reported less difficulty with mobility (35.2%, $p < .001$) compared to non-Asian language speakers, as well as less pain (63.1% vs. 76.8%, $p < .01$), less ED use (15.8% versus 32.9%, $p < .01$), less hospital use (6.0% versus 15.8%, $p < .01$) and fewer 911 calls (7.8% versus 17.9%, $p < .01$).

Asian-language speakers had more problems with self-care compared to non-Asian language speakers (29.5% vs. 16.4%, $p < .01$) and had an increase in problems with anxiety or depression during the project period, from 34.4% to 50.8%. There were no differences between Asian and non-Asian language speakers on difficulties completing daily activities, self-rated health or quality of life.

The rate of food insecurity was higher among Asian-language speakers at both the beginning and end of the project period (36.5% to 28.6%), but this difference was not statistically significant. Food insecurity among all residents decreased during the project period. A local non-profit started an Asian Breakfast once a month and Asian residents were invited to help with a food pantry, including providing food preferences. However, there were not statistically significant changes over time in food insecurity among Asian- and non-Asian language speakers. The rate of food insecurity among Asian language speakers was higher (32.5%) than the rate for non-Asian language speakers, but this difference was not statistically significant.

Qualitative Findings

Stakeholder Interviews

Interviews were conducted with stakeholders, including residents, building staff, and partner agencies, to document information about program goals, implementation and processes. The below table summarizes responses, focusing on key themes and responses.

Question	Response: LLC members, Fall 2014 and Winter 2015
How is HWS going?	Didn't have expectations. Thought that CareOregon was going to pay for services, have heard that residents' expectations for services aren't being met, not sure how to reach residents who would qualify for the agency's services, launch going slower than expected, some targeted residents already have services, was expecting more non-Medicaid services but focus is on Medicaid clients.
What grade would you give the program communication?	Average of A- because good communication – email blasts, meetings with sub-groups of participants.
What grade would you give the program's business model	Average of B+, but uncertain because the model isn't clear and it isn't clear whether it is sustainable.
What grade would you give the services component?	Learning process is slow. Different providers don't yet know each other. For example, one agency didn't realize that they could refer residents who didn't qualify for their program to other service providers in the network. Coordination of existing services is the main function. Culturally specific services working well for Asian immigrants, providing wrap-around services.
What would you keep the same?	Not sure yet, program is still underdeveloped but now that health navigators are on the ground, it should improve.
What would you change?	Small culturally-specific programs might be better served by an MOU rather than joining an LLC. Need more information exchange between partners, including written materials that describe different partner agencies and referral processes. Resident outreach is important – can't wait for residents to come to service providers. Would have been better to have an in-person meeting among various "boots on the ground" providers at the project start. Lack of funding and reliance on grants is a drawback. Overall, start-up was slow despite the months of meetings to plan it. Staff training at the project start. Need flexible spending options so that tenants in need can receive services that prevent worse health problems.
How likely will the program continue after 2016	Most agreed that it would continue, especially if the evaluation shows that it saves money and connects tenants to services. The program can continue if the agency that benefits the most decides to keep it going.
Suggestions for HWS	Too soon to say. Look at what other states have done, ask what works and what does not. Need a way to work across the different health plans – at least six different health plans, all with different program priorities and processes. Staff training is important. There needs to be a LTC navigator, probably from a state agency.

Question	Resident Services Staff, Fall 2014
Is HWS going the way you expected	Not yet – hoping for tenant stabilization, such as housecleaning, to prevent evictions. Housecleaning is far less expensive than eviction, but preventing a tenant from going to a nursing home saves even more money. Expecting more social services instead of only medical services. Confusion about the eligibility criteria for different programs and agencies. The availability of nurses in the buildings is an asset; the RSC works with nurses to connect tenants who need medical and psychiatric services. Expected services to be more hands-on, like BP checks, at the beginning, but it started slowly. Concern that nursing services not available to tenants who are not covered by CareOregon. But nurses have follow-up with tenants, which helps.
What grade would you give information you received?	Average of B. Not sure what Housing with Services is yet. An orientation would have been helpful; not sure what to tell tenants about it. Can be difficult to keep up with the information because of work demands (e.g., 300 tenants). No Housing with Services branding, and concern that the program won't continue after the funding. The Friday technical assistance call (started November 2014?) was appreciated but the time doesn't work for all. There was an information gap after the nurses started, as though no more information was needed but RSCs did not understand what was available.
What grade would you give information that residents received?	Average of B minus. The initial flyer had small font and technical language and it had to be revised. On-site information provided by Housing with Services staff and nurses was useful, and the Resident Advisory Council members talked to their neighbors. Overall initial dissatisfaction about what the program was and how to access it. Residents needed simple and consistent information but there were changes as the program rolled out and this led to mistrust among some residents. Need to get endorsement from RAC.
What grade would you give the services package?	As of December 2014, an average of C. The service roll-out was confusing and did not include services discussed during planning meetings, although the effort to provide wrap-around services was appreciated. Needed services – mental health, addiction counseling, vision, and dental. Not sure yet if tenants are receiving services, but hopeful that certain behaviors, like drunkenness, will be reduced. Uncertain at the beginning whether all residents, or only CareOregon clients, would be eligible. In some buildings, it seems like a new program, but in buildings with resident services, it seems the same.
What would you keep the same?	Everything, especially Resident Advisory Council. The on-site nurses and the various partner agencies. Weekly phone calls.
What would you change?	Need more social services, such as housekeeping and skills training, for tenants. Need more communication for building staff and tenants, especially if there is a roll-out for a new service. Example of confusion: the building already had student nurses visiting the building to do BP and other health screenings. Tenants were confused that the CareOregon nurses didn't provide hands-on services. Need more preventive health programs like walking clubs, nutrition classes, and more health screenings (e.g., foot, dental). Need more outreach to residents who don't come to the nurses office hours and who might not know what is available. Need on-site mental health counselor. Need a grantwriter to write grants for targeted services that aren't covered by health system – housekeeping, behavioral health services like hoarding, space management, organization.

What do residents say?	Happy that it is there, but some concerns about having to change providers. Hopeful, but wondering when it will start. "They love it but they want more." No follow-up with nurses. But nurse helped one resident newly diagnosed with diabetes. Her clinic sent her home with a blood glucose monitor and no instructions on how to use it. The nurse showed her what to do. One RSC contacted by two tenants very unhappy, but there was follow-up to address misinformation and it was resolved. But most residents still not sure what HWS is.

Question	Response: Eleven Resident Service Coordinators, Fall 2015
How would you grade the information you receive about Housing with Services?	Average of A-**.** Communication has been really good: email, in-person with Cascadia and the nurses. They've really boosted information … fliers, event announcements, multi-cultural sources, update calls. There are ways we can improve information about residents. They are consistent sending info. I can return to my role (when construction ends) with little gaps in knowledge of program. I forward phone call summaries to staff. We don't have orientation materials for new staff.
How would you grade the services package?	Average of A-. Again, communication is key. Nurses checking in with residents when discharged from the hospital. They're doing best with what they've got. Gathering existing services into bundle. There's still a gap—transportation. Would like to see them expand multi-culturally—more Russian, Farsi outreach. We have mental health and physical health services, but it's still early to be able to care holistically for residents. There could be better coordination between our side (housing) and theirs (services). Because my understanding that it was intended to fill gaps where they fall for individual residents—when they require help in the home but don't qualify for services i.e., a resident became blind and required assistance with groceries and banking before Medicaid benefits took effect. There was no resource for assistance. The services are average by comparison with senior centers that offer OPI, but for people who are ineligible, it's just average. Considering my highest hopes and what it would take to earn an "A," I can give this a "B." I don't feel any negatives about the program, its working well because addition of mental health staff. Important to hear from employees, all staff thinking about ways to reach, improve process over time by changing hours, cold calling on residents, follow up on ER/hospital visits, transition planning.
How far will Housing with Services go to help a resident?	Average of A-. They are always available to talk—arranging medical transport, helping residents understand covered services, but it's important for staff to understand enabling vs helping residents live independently. They're quite committed, always figure out how to find solution. They go to great lengths. My experience with folks doing the work is commendable in their effort to outreach and stay engaged. I still call OPI, and hope descriptive process qualifies the individual for their need-rubric. No funds for residents who may fail housekeeping inspection due to insanitary conditions, or fire risk (items too near heat source or blocked exits). If eligible, OPI helps by purchasing and paying for services such as homecare. Because of the dedication of services, all are committed i.e. Give2Get and food gleaning.
Do you participate in	A few service partners participate while others wait for the summaries, which they read or skim and save for future reference. In general, the summaries are

the Friday update call? Why or why not?	appreciated, though some staff prefer to call the nurses or other program staff. One said, "It's cumbersome, but I love to listen."

In the most recent 4 months:	
What would you change?	Getting more outreach funds for mental health. Fee-for-service is not sustainable. Orienting new staff as they join agencies. Give2Get could fill some gaps where residents need services; it is not accessible for RSCs to refer tasks to G2G, need a dedicated contact person for RSCs so they could fulfill need immediately (like a volunteer coordinator). Earlier concerns about HWS staff boundaries have been corrected. Coordination between onsite staff, health navigators, and mental health provider is being worked out. Suggestions: Need an information packet to explain different services-both for residents and for staff; keep the weekly update calls; foster volunteer leaders; staff training on how to better interact with police, how to react to negative interaction.
What would you keep the same?	Keep the same nurses because residents feel safe and trust them. The mental health social worker—RSCs may recognize there's a problem, but SW can identify what the problem is. Keep the phone meetings, the level of correspondence. Keep resident involvement. CareOregon nurses' primary outreach method has shifted from RSC referrals to hospital discharge/admit reports as primary source of referral, giving more productive results.
What have you heard from residents about HWS?	The folks that have used it really appreciate it. Several residents referred to the mental health SW, it helped them feel better. Residents think that the service they use is HWS—if they use AHSC, then they think of AHSC as HWS. If general HWS contact, they probably more closely associate with Give2Get's social outreach (coffee Monday and Friday). Give2Get presence may improve after construction is completed. FoodRX is great; perishable items are gone by the next day. FoodRx is the most significant contribution at our building and probably why most residents recognize HWS. Food is one of the main needs perceived by residents. Residents identify singular components (G2G, food pantry, CareOregon) rather than Housing with Services. My residents still ask what HWS is; they don't see gleaning as HWS branding. They don't see HWS, just service arms. I haven't heard anything, and complaints would come to me.
What else should we know?	Our building is undergoing construction, so 20 units at a time are vacant. Anticipated completion around Jan 1, 2016. Release of resident information between HWS and building staff should happen more easily—how to respect resident rights and communicate information to help them. It would be nice if Give2Get could fill gaps for Service Coordinators. Nurses need space to make phone calls other than in public meeting area—it disturbs other residents and is a privacy concern.

Question	Resident advisory council members
In your opinion, how is the Housing with Services project going in your building?	It's going quite well. It's lifted morale, and they've seen nurses and a dental screening. Good! OK, the nurse gives advice, how to take Rx, clean room, prevent diseases. It's going well, exciting. The nurses have been coming for one week so far, not a good turnout yet. Residents think it is just for CareOregon. Several residents are going to the clinic for footcare, a roll-on scale, because it's close.
Do you feel that the residents' voices are being heard by the various housing and service providers?	Yes, more so, as the project progresses. I'm involved, and it's enabling a lot of people to get out and reach into the outside community. People are saying that it's great! The nurses are here Wednesdays at 2pm, and lots of people are going to see them. The word is getting out. They are getting immediate care instead of ER visit. Yes, residents take things to resident advisor board, so they can be heard that way.
What suggestions, if any, do you have for the housing and service providers?	Keep moving forward. I think they're doing well. I think that if they would knock on the doors of people who don't come out of their rooms would be a good thing. I'd like more preventive health education. That would be good for the people. BP check, med check, etc. I wish there was some way to make their "booth" --it looks like bags or a booth from CareOregon. There's a card table that emphasizes CareOregon--residents may think they're selling something. Residents may be suspicious if there's a lack of confidentiality. Initially, they were in a spot that was very exposed--I spoke to them, and they moved--confidentiality is hard to ensure in the lobby.
Is there anything else you would like to tell us about the project?	It's made a difference in people's lives. Basically, it's going good. I wish it was being used more. It would be good to have a sign or large floor poster about HWS (instead of CareOregon), and publicity, about advice and problem solving.

Summary of Stakeholder Interviews

Over time, resident services staff in each building improved the letter grade they gave to HWS. The interviews show that these staff were uncertain about the types of services available and eligibility for services, but over time, this uncertainty lessoned. Suggestions from these and other stakeholders include providing an orientation as well as ongoing training for HWS-connected staff. Potential topics could include service availability, eligibility, information tracking, referrals, resident privacy, and information sharing processes.

Resident Case Studies

The below case studies provide a brief snapshot of the lives of several residents who had some contact with the HWS team. Individual interviews were done with three Russian-speaking residents, and two group interviews were done with AHSC clients, one with Korean speakers and the other with Mandarin-language speakers.

Jane
Jane moved to her apartment when the single room occupancy hotel she lived in was permanently closed 15 years ago. She likes this building "OK" except that it has "too many rules" like visiting hours from 8 a.m. to 11 a.m. Her daily routine includes watching television. Jane is unable to walk more than a few feet because of severe pain from her hips, which she says need to be "replaced." She has been waiting for two years to be approved for this surgery and the pain affects all aspects of her life, including her memory (poor), her health (poor), and her mood—she says she wants to die instead of live with the pain. She has called 911 because of the pain and says her over-the-counter pain medication does not work. Her Medicaid caseworker is trying to get Jane a motorized scooter and a housekeeper. Jane receives Meals on Wheels and a monthly food box in addition to SNAP ($70/month), but she shops at the corner market, which lacks fresh food, due to her limited mobility. A neighbor keeps her company and helps her manage her appointments. Her goals, once she has her hips replaced, include riding a bike and going for a walk in Forest Park. The Housing with Services staff attempted to advocate for Jane but learned that she would not qualify for surgery until she received needed dental work, but they were unable to locate a dentist who would agree to do the work since Jane lacks dental insurance. Jane indicated that she had been cleared for surgery, scheduled for later this year, possibly because she received dental benefits.
Mary
Mary and her "crazy" cat have lived in her downtown apartment for seven years. She describes her residence as "pretty darn near perfect" because it is close to everything – a grocery store, library, bank, pharmacy, and the bank. Mary says that the Dollar Tree is "my restaurant" and that she gets frozen meals, or has beans that she puts on a boiled potato. If she's "feeling rich," she adds hamburger. Mary lives on supplemental security income and $40 in SNAP each month. "Good thing I had cheap parents" she said about her ability to live on very little. She likes to walk in the park and takes her cat everywhere. Now 63, Mary has had mental health issues throughout her life, and recently had conflict with the management because she believed that neighbors were trying to poison her. She described her health as "atrocious" and her memory as "pretty good." She does not have teeth. Mary wishes that she knew a few words to say hello and to share information about "deals at the grocery" with her neighbors from southeast Asian countries, but she also didn't want to "stand in line behind 300 Asians" when trying to access a nearby service. Housing with Services staff worked with her to address her conflict with neighbors and to access medical and behavioral health services. Through HWS, she saw a counselor and got someone to watch her cat so that she could go to a clinic for cancer treatment.

Marty
Marty, age 55, moved to his building in 2005. Before that, he had been homeless two years after the loss of a tech job and divorce. He says that his building is in an excellent neighborhood, and he is well-known locally through his volunteerism (>10 organizations). He keeps busy volunteering with FoodRx and coordinating the food pantry in his building. Marty is guided by the value that everyone is accorded a measure of respect. Marty had significant health problems this year: He woke up with a scratchy throat and couldn't speak. After 3 weeks, he had trouble breathing at night, and the CareOregon Health Navigator advised him to go to Urgent Care rather than wait for an appointment (he didn't have a primary care physician). He was diagnosed with stage 4 pharyngeal cancer, and immediately began a treatment plan that included radiation and chemotherapy. A CareOregon nurse went to medical appointments with him. FoodRX helped with special foods and protein shakes, and Give2Get gave him a Cuisinart. Marty is now cancer-free. However, he had a heart attack, requiring hospitalization to insert a stent. During these illnesses, Marty failed his annual apartment inspection, and the Give2Get Program Manager helped him clean his apartment, enabling him to pass the follow-up inspection. Marty talks of the success of Housing with Services and Give2Get. He has been involved as a volunteer from the beginning, and can't believe how he's been able to use skills to get things done to help others.
Donna
Donna has lived in her apartment for 12 years. Before, she lived in a duplex with a yard and carport, but after becoming wheelchair-bound, she had to reduce her work hours and could no longer to afford the rent. Donna has an MSW degree. Her strong work ethic made it difficult to accept her loss of work and independence. However, she loves her apartment, and has garden space on her 2nd floor patio. The building location is very convenient, and she can get most places in her wheelchair. She finds the other residents interesting, and can always find someone to talk to. Each morning she is tended by caregivers then has coffee and checks her email and Facebook, and gives her cat and fish their morning treats. She tries to do something every day of the week, such as Pinochle, cards, art classes, or activities planned by the building management. Her grandsons visit weekly. Donna follows a daily regimen of stretching, prepares her own meals and eats healthy. She receives SNAP benefits, and gets food from discount markets and Safeway, food pantries, and the farmer's market. She eats out occasionally. DE rates her health as fair-to-good because of multiple diagnoses, but her primary and specialty care is "excellent." She worries about future heart surgery and says that stress has recently caused her to limit her regular activities. Donna describes the Housing with Services staff as "amazing." She uses their roll-on weight scale, and she found Give2Get "great" because it is based on "what do you want?" She donated her old wheelchair and it has been loaned to five other residents.

Martin
Martin moved to his apartment in 2010. He moved here from a place where neighbors had “bad reputations.” He has a history of working, but also sacrificed a lot caring for his parents. As he grew older, he struggled to support himself. This building is excellently maintained, and he has no neighbor problems. Most residents are “elderly” and “easy to get along with.” One elderly neighbor gets expired goods and shares them with Melvin. His apartment is near the streetcar stop and he hears noise from the homeless people who gather there. On a typical day, he gets up and checks the computer, then goes for a 10-15 minute walk. If it is nice, he goes to the PSU fountain to read a book. He has dinner, and watches the evening news. Later, he may go for another walk, then watch some more TV. Melvin talked about several dogs that he’s had or taken care of. He couldn’t keep up with his last dog, and let him go when he had a breakdown. To stay healthy, he walks a couple times a day, and tries to read things that are entertaining and light, to quiet down. He cooks his own meals and volunteers at FreeGeek. He has problems with anger, depression, and sleep, but says his health is good. Martin shared that twenty days in the last month his mental health has been “poor,” but it did not keep him from his regular activities. He has taken medications to help his memory, and is working on a system to organize his schedule with the Housing with Services social worker.
Ronald
Ronald has lived in his apartment for one year. Before that, he lived in an SRO that had a yard, but also several “drunks and addicts.” His apartment lets him be more independent, because now he has his own kitchen. This building has a mix of nationalities but, generally, they are all “grateful to have been pulled from difficult circumstances.” His building has access to two outdoor seating areas, one that lacks sunshine, and the other that is dominated by ‘weed’ smokers. Ronald has a busy volunteer schedule (six committees), but has a severe tremor that makes it difficult to write notes or record appointments. He feels that not being able to ‘write’ a schedule keeps him from taking advantage of free exercise classes. He has been unable to secure support for technology training to compensate for his tremor. He eats healthy foods, including “lots of veggies” and goes to local stores and farmers markets for food. He does not exercise, but recently got another bike (his earlier bikes have been stolen). He has a good memory for trivia, but can’t always remember names and dates. Two or three days in the last month have been ‘bad;’ he has PTSD and nightmares than can leave him troubled for days afterward. He can tell that his medications help, because he can recognize when he doesn’t take them.

Diana
Diana moved to this building in 1995 from a nearby subsidized apartment; she said it was filled with drugs and violence. She moved here because the manager let her bring her 4 cats. For years, her friends were “rowdy” and drinking, until about 4 years ago. Since the renovation, living here is good. Diana starts her day with coffee and cigarettes. She makes her bed daily, and cleans her kitchen and bathroom. She checks the mail, and spends a lot of time with TV. She reads paperbacks (from Safeway) in the afternoons. Diana assembles her meals from pre-cooked ingredients: chickens she buys cooked at Safeway. She doesn’t trust herself to use electric appliances. She is proud of her teeth, a full set of dental implants, and she’s able to follow a much healthier diet. She takes her prescription medication to stay healthy, and she has a calendar on her coffee table, next to several Rx bottles, that she crosses off to track her medication and appointments. She gets a flu shot every year, and hasn’t been sick for a long time. She leaves the house about twice a week, mostly to Safeway. She is optimistic, and until this stable stretch, she was unable to concentrate well enough to read. Diana had a mental break earlier this year, and the resident services staff introduced her to the HWS social worker. Diana works to comply with the social worker’s instructions, using her calendar to mark items off, because it is the first time anything has worked for her. Debbie shared she has a history of unstable mental health issues, but that the social worker intervened, staging a conference call between her providers, and sending her to Providence for 5-day stabilization, working with her after she was released. Diana also received food from a Give2Get volunteer.
Edward
Edward had lived in his apartment for three and one-half years. He lived at a nearby subsidized building but was relocated during a major renovation. Edward says it is a great well-managed building with a mix of seniors, people with disabilities, and some with serious emotional issues. A variety of activities are provided free, paid for by grants secured by building management. It is normal for seniors to not participate in many things, but there’s a lot available for those who do. Edward has a bad back, so his daily routine includes pushups, coffee, and 1-2 trips up-and-down the stairwells (he lives on the 9th floor), yoga class, and trips to the library. Edward referred to his daughter and her husband as companions with whom he talks about important matters. He volunteers with NW Gleaners (related to FoodRx and Give2Get) and serves on Give2Get’s Leadership Council. He believes in helping his neighbors, an attribute he credits to his mother and growing up in Detroit. He helps his neighbors with their grocery shopping. He had a serious stroke eight years ago, and considers his recovery ‘lucky,’ so he ‘carries’ as many other people as possible. He prepares healthy meals at home, and walks a lot—if slowly. His memory and health are excellent. He reports his mental and physical health as excellent. Regarding Housing with Services, Edward can’t express enough gratitude for their influence. They gently remind him of things he forgets, and he cannot count all the things they do for him.

Pam
Pam is blind and has lived in her apartment since 1987, after she lost a job and used up her savings. She has a caregiver, April, who is retiring soon. Pam likes her large one-bedroom apartment better than the basement apartment she was in at first. When she feels well enough, she will take her iPad to Independent Living Resources class. She has a pet rat, her third one. She likes her fellow residents and uses the community room for Bingo and where the NW Gleaners brings food. She has diabetes and eats a healthy diet and exercises some. Recently she has experienced dizziness and she had a fall that kept her at home for several days. Despite her health challenges, Pam says that things are OK, though they could be better. Pam's memory is very good; she may have had a few 'off' days due to her dizziness, but did not want to say any of her days were 'not good.' She takes no medications for mental health or emotions. She knows staff from Give2Get Fridays at the clinic, and she met with the social worker who helped her straighten out a problem. Pam receives SNAP benefits and eats most meals at home, takes advantage of Meals on Wheels, Loaves and Fishes, and the building food pantry. Her care providers do her shopping, and she goes out sometimes to eat.

Korean language group
A group of 10 Korean residents, all women, attended a morning coffee. They live in four different apartment buildings. The oldest woman was 98. Most of them had lived in the U.S. for at least 20 years, and only one speaks English. They said the fire emergency plan information and building inspection sheet were offered in Korean in their buildings. They each had attended events planned by AHSC. These meetings are very important to the group. One woman describe how some days she had no one to talk to. It too her 30 minutes to walk from her building to this one, but it was worth it. A couple of the residents had attended general resident meetings but because no interpreter was available, they stopped going. One said it would be good to have someone who could represent Korean residents' interests at a resident meeting. In contrast, they believe that the residents who speak Chinese are better represented in their buildings, possibly because there are more of them. Some of the women expressed fears. One was worried about a neighbor who bangs on her door. She hides in the bathroom when he does this. Another worried about scams and telemarketing calls. They talked about general frustrations accessing services in their buildings and in the community. But another theme was the importance of being grateful, as immigrants and as Catholics, for what they have received.

Russian language speakers
Individual interviews were conducted with three residents who moved to the U.S. from Russia. The HWS contact at Jewish Family and Child Services indicated that the Russian-speaking residents were frail and in poor health and that this approach would work best. The three women, all over age 80, said that they were satisfied with the translation services available in the building, though one said she has low expectations for this service. Another said that an interpreter would be helpful during events, but she knows it is expensive. One woman, who is over 90 years old, had been to a hospital ED the day before the interview. She said that a translator had been provided on a computer screen and she wondered if the building could arrange this service. Each woman was very satisfied with translation for health care services. All three said that services had improved since a new manager was employed in the prior year. They were happy with culturally-specific events in the building; one said that decorations celebrating Jewish holidays had been displayed in her building. Information about the building is translated into several languages, including Russian. One woman explained that "there are many nationalities of people living here." She said, "I get to live in this really nice home and have water and heat all day. I don't have to worry about it getting shut off. I have it really good here. I would like to be able to communicate with others but they also have their own language." The other two women were also positive about the building staff and their neighbors.
Mandarin language speakers
Twenty older adults who speak Mandarin participated in a group interview to talk about culturally-specific services in their building. Most participate in a weekly group activity for Chinese residents. , Participants appreciate that AHSC helps them solve issues like interpreting mail, Safelink phone problems, making doctors' appointments, scheduling transportation, and other services. In addition, they appreciate that Chinese holidays are recognized and celebrated with friends, family, and traditional foods and activities. "This makes us feel like we are home." AHSC organize exercise, outings, and provide health education workshops that help the residents "live happier and healthier" lives. Several participants said that culturally-specific services have improved in the past year. The translations provided by the building sometimes has errors, and staff do not always understand the type of interpreter needed by the resident. Letters that come from the building staff are "unfriendly" but when AHSC writes the letter, are "considerate" because they include information like reminders to bring water to drink, what to wear, and other "thoughtful" information. The resident meetings held by the management lack an interpreter. They would like this service as well as telephone interpretation services. Residents wish they could communicate with their neighbors who speak other languages. They hope the partnership with AHSC continues and that there will be more activities and outings. And, they requested public WIFI access.

These brief case studies provide information about the daily lives of some residents in publicly-subsidized housing. They described coming to subsidized housing through various routes, including homelessness, loss of a job or significant other, health problems, and low income. Residents received various health and social services and some described how they maintain their health through diet and exercise. Some were very limited by physical disability, including Jane, Edward, and Pam, who have very limited mobility. Others received help from a social worker to manage their schedules such that they could attend scheduled medical appointments and prepare for apartment inspections. The value of social activities, including the ability to give

to others, was important for those who participated in Give2Get, Food Rx, and other social programs. Some residents described a sense of connection and shared purpose based on their participation.

Conclusion: Housing with Services

This report describes the evaluation of Housing with Services, a program of health and housing that began in September 2014 and included over 1,400 low-income residents of 10 publicly-subsidized apartment buildings. The evaluation relied on several data sources to assess program impacts on the residents, all older adults or persons with disabilities. The primary data sources included two residents surveys (one before the start of programmed services and the second 16 months later), claims data to examine the utilization and costs of health care before and after program implementation, stakeholder interviews, and a dataset maintained by HWS to track interactions with individual residents.

Portland's HWS grew from a planning group into a coordinated effort among multiple health, social, and housing agencies that made positive improvements in the lives of hundreds of low-income older adults and persons with disabilities during its first 18 months of operation. The program of services had the most measureable impact on residents with the highest level of unmet needs, such as those who needed medical care, mental health services, access to benefits for which they were eligible, and food.

As stated in a study of health and housing conducted by Providence CORE (Health in Housing, 2015), health services and subsidized housing have a "blended future." The reasons for coordinating services with housing include improved access to health and social services, a potential for reducing health care costs, and improving residents' quality of life. Health care providers are directed by the Affordable Care Act to know where their clients live, including whether they are homeless, at risk of homelessness, or in affordable housing. Housing is a social determinant of health that can perform as a platform for health services, or a barrier to health.

The buildings in this study are designated by HUD for older adults and persons with disabilities. Most of the residents will live in their home for years, or even decades, and many will do so until they die. Some will need assistance to do so, but housing providers are not set up to provide or coordinate long-term services and supports. This partnership among housing, health, and social service providers provides an example of collective impact that can be adopted by other communities with similar goals of promoting residents' health and the ability to age in place.

What is Housing with Services?

HWS is an emerging model of community-based care. Other models of housing plus services target different population groups, including families, previously homeless individuals, and persons with substance use disorders. While the needs and goals of these groups might differ, a common theme is to bring services closer to where people live, and to provide opportunities

that improve quality of life and sense of community while also connecting the most vulnerable members of the group to appropriate care and treatment. HWS is not a licensed health care setting, though some residents receive health care in their homes. Residents live independently and they may choose whether or not to engage in any offered services. Subsidized housing is similar to other homes in the community, where individuals with acute or chronic health conditions need occasional or ongoing support to manage a medical condition, take care of personal activities of daily living, and participate in activities that are personally meaningful.

Vermont's SASH model influenced the initial stages of the HWS program. SASH established panels of 100 Medicare fee-for service beneficiaries. Initially the SASH program targeted residents of affordable housing, but program eligibility was expanded to all Medicare FFS beneficiaries in Vermont. An evaluation[3] found that for participants enrolled in the initial panels, growth in annual Medicare expenditures was lower by an estimated $1,536 per beneficiary. Three lessons from the SASH program are relevant to the future of HWS. First, programs need a certain amount of start-up time before their implementation becomes fully effective. The SASH program's cost reductions were not seen until the third year of the program. Second, the greatest cost savings were among SASH participants who lived in affordable housing, rather than in the community. Third, SASH was part of a larger state-wide health care system reform.

The HWS program planning team initially hoped to use a fee-for-services model. However, the profile of residents in the apartment buildings involved did not support this approach. For a SASH-style model to work, HWS would need to be integrated with Oregon's health care transformation goals and, if relevant, expand into affordable housing with large numbers of Medicare FFS beneficiaries.

HWS is in a developmental stage. However, this model provides lessons in how housing and health and social service agencies can work collaboratively to coordinate and deliver services to affordable housing residents.

[3] Final Evaluation of SASH. (2016). https://aspe.hhs.gov/sites/default/files/pdf/198446/SASH2.pdf

Key Findings Based on Claims Analysis and Resident Survey

Following is a summary of all key findings described in this report.

Preventative Health Services	Residents who had contact with HWS were more likely to use preventative health services. • 91% of HWS users reported they had access to a primary care clinic, compared to 81% who did not use HWS ($p < .05$). • 80% of residents got a flu vaccine in 2016 compared to 69% in 2014. Residents who had some HWS contact were more likely to have a flu vaccination. • 89% of residents who had some HWS contact reported more preventative screening (e.g., blood pressure checks, colorectal exam, mammography) compared to 78% residents with no HWS contact.
OPMH Use	Outpatient mental health use increased among residents with HWS contacts. • The OPMH use rate was 1.0 visits PMPY among HWS contacts compared to .80 visits PMPY for residents with no HWS contacts.
Mental Health	On nearly every measure, residents with a MH diagnosis fared worse, compared to residents who did not report a MH diagnosis. • Residents with a MH diagnosis had 32 HWS contacts compared to 20 contacts on average among residents without this diagnosis ($p < .05$). • 91% of residents with a MH diagnosis reported at least one visit to a primary care clinic compared to 84% of those without a MH diagnosis ($p < .05$).
ED and Hospital Use	HWS successfully engaged with residents whose health needs were greater both before the program was implemented and over time. • Based on claims analyses, in the 6 months before HWS began, both inpatient hospital and ED use were higher among residents who later had HWS contact, compared to those who did not. • Based on claims analyses, ED visits went down slightly among HWS users, from .722 to .711 PMPY (n.s.) • HWS staff had more contacts with 256 residents who said they had an ED visit in the prior 6 months. Overall, 45% of residents who had a high level of HWS contacts visited the ED, compared to residents with low (31%) and no HWS contact (20%) ($p < .01$). • HWS staff had more contacts with residents who said they were hospitalized overnight. Overall, 26% of residents with a high level of HWS contacts were hospitalized overnight compared to 13% of residents with low and 12.5% of residents with no HWS contacts ($p < .05$).
Food Access	Residents who had Housing with Services contacts reported far less food insecurity compared to residents with no contacts, over time. • Food insecurity decreased by 50% among residents with a high level of HWS contact, and by 34% among those with a lower level of contact.

	• Food insecurity was higher among residents with a mental health diagnosis (40%) compared to those without this diagnosis (19%, $p < .001$). • 27% of residents at high risk of social isolation were food insecure compared to 19% of residents at low risk (approaching significance).
Use of LTSS	The number of Medicaid-eligible residents with HWS contacts received long-term services and supports increased during the program period. • 5.8% of 276 Medicaid-eligible residents who had a HWS contact received services in 2016, compared to 2.4% in 2014.

Housing Stability	The HWS program successfully reached residents at risk of housing instability. • HWS staff had more contact with residents who said they needed help to prepare for an inspection: 42% of residents with a higher level of HWS contact said they needed assistance compared to 22% of residents with less HWS contact, and 16% of residents with no HWS contact ($p < .001$). • 24% of residents who had some HWS contact had difficulty passing an inspection compared to 11% of those with no HWS contact ($p < .05$).
Quality of Life	Residents' quality of life differed based on the level of HWS contacts they had. • HWS staff had more contact with residents who said they had mobility impairments. Residents with higher HWS contacts had more mobility impairment ($M = 1.70$) compared to residents with some HWS contact ($M = 1.53$) or no contacts ($M = 1.46$). • HWS staff had more contact with residents who called 911. Overall, 26.5% of residents with high HWS contacts called 911 compared to only 11% of residents who had no HWS contacts ($p < .01$). • HWS staff had more contact with residents who had increased feelings of anxiety or depression during the project period ($p < .001$).

Social Isolation	HWS staff had more contacts—27—with residents at higher risk of social isolation compared to residents at low risk of isolation—23 contacts.
Culturally-specific Services	Non-Asian language speakers had an average of 30 HWS contacts compared to 14 contacts for Asian language speakers ($p<.001$).

Key Lessons: Program Planning and Implementation

Despite the on-time roll-out, the program faced operational challenges, an initial key challenge was uncertainty about the actual program of services—building staff and residents did not know what was available and who was eligible. The specific program goals were unclear, though the planning group had developed a list of planned services. An initial communication gap was filled fairly quickly with the implementation of a weekly technical assistance telephone conference call for all partners. In addition, the HWS program operator regularly met with or talked to partner agencies. The availability of shared space, with computers, telephones, and

desks, available to staff from these agencies likely promoted communication and coordination among agencies.

This evaluation provides key findings and lessons regarding HWS program planning and implementation based on qualitative interviews with stakeholders and assessment of the various data sources (Table 14).

Table 14. Key Lessons for Program Planning and Implementation

Program Planning	Implementation
Encourage and establish a structure to support partner, service provider and stakeholder involvement, including residents	On-site program staff were critical to support of and connection to outside agencies
Clearly define goals and services, and share with partners	Promote and establish a structure for ongoing communication among partners
Be flexible and adaptable to accommodate changes in revenue, public policy and external political dynamics	Provide staff orientation, training and ongoing opportunities for program feedback
Schedule time to get partner agency commitment (repetitive?)	Create and use a shared database to support data collection, reporting, communication and tracking program impact
Agree to share information about residents across agencies within the limitations of resident privacy and HIPAA compliance requirements	Employ an Operations Manager to serve as central communications contact and to provide support/oversight of the care coordination model
Provide strong leadership from a backbone organization and key partners	Employ a mental health clinician with mental health training suited to serve this population
Promote and cultivate organizational commitment from LLC partners through Board support and regular meetings Use Interagency Agreements and MOU's to promote effective services coordination, project understanding and continuous quality improvement.	Create a structure for strong resident involvement in program development, implementation and ongoing oversight.

Having a clear set of program services and goals at the outset is important. Some of the goals described during program planning, such as reducing crime or recidivism, could not have been achieved because they were not included in the program roll-out. The initial goal of reducing ED use was modified to focus on access to needed services, especially primary care, social services, and preventative care.

Being flexible and adaptive is as important as having clear program goals. For example, the initial resident needs assessment found that a larger than expected number of residents experienced food insecurity. The program staff responded by adding additional food access initiatives, and this action greatly reduced food insecurity among many residents. The availability of on-site services promoted a level of trust among residents and building staff that might explain, in part, the ability of the program to connect to chronically ill and vulnerable

residents. Having both nurses and social workers with mental health training present in the buildings on a weekly basis was key to program success, because these staff need time to establish trusting relationships with residents and housing staff.

Key Lessons: Program Impacts on Resident Outcomes

A consistent finding across multiple data sources is that HWS successfully reached residents who were vulnerable on a variety of health-related indicators, such as presence of chronic illness, mental illness, mobility impairment, and social indicators of need, such as food insecurity and social isolation. Key findings regarding residents included:

- Differences in baseline diagnoses between the residents who did and did not receive HWS contacts suggests that HWS successfully identified sicker residents who would benefit from the provided services, many who had unmet needs.
- At least 90% of HWS users reported they had access to a primary care clinic, compared to 81% who did not have a HWS contact.
- Food insecurity among residents decreased, on average, from 32% to 22%.
- The number of residents receiving a flu vaccine increased from 69% to 80%.
- HWS staff had contact with residents who were more likely to have had a preventative health screening (e.g., mammography, colorectal exam).
- The number of Medicaid-eligible residents who received Medicaid-financed long-term services and supports increased during the program period.
- Survey respondents at T2 were less likely, compared to T1 respondents, to report calling 911/going to the hospital, calling the service coordinator or building staff, and going to an urgent care clinic, when feeling sick.
- Survey respondents with more HWS contacts reported more ED visits.
- Residents who had any HWS service/contact had higher utilization of ED and IP hospitalization in the 6 months prior to HWS implementation.
- Survey respondents with a higher level of HWS contact reported a greater need for assistance preparing for an apartment inspection.
- Of the residents who permanently left their apartment building, 32% moved by choice, 28% moved for unknown/other reasons, 27% died, and 14% were either evicted or moved at the management's request or under duress.
- Evictions were reported for 3.4% of 865 residents during a 17-month time period.
- HWS staff were more likely to have had contacts with residents who reported they felt anxious or depressed or had a mobility impairment.
- Nearly half--45%-- of survey respondents reported a mental health diagnosis. On nearly every measure, these residents fared worse, compared to residents who did not report a mental health diagnosis.

Appendices

Appendix 1: Research Methods

As noted above, this evaluation included several data sources to assess program impacts and resident outcomes. Although the study design attempts to account for changes over time, the timeline of deliverables to the funding agency required that some data, including the second resident survey and claims data, had to be collected while the program was still being implemented. The program impacts, especially health care utilization and costs, could be better assessed next year.

Resident Survey Methods

To evaluate program impacts on residents and describe resident characteristics, two self-administered surveys were administered. At T1, 1401 surveys were hand-delivered to all units in the 11 apartment buildings and 544 responded, for a 39% response rate. At T2, 1,385 surveys were hand-delivered to all units in 10 buildings (excluding the building closed for renovation), and 511 responded, for a 37% response rate. For both surveys, an information sheet that described the availability of interpreters was translated in Russian, Farsi, Spanish, Mandarin, and Cantonese languages. A follow-up postcard was sent to residents who had not responded after six weeks. AHSC assisted in the recruitment and interviewing of residents who requested an interview by a Cantonese, Mandarin, Korean, or Vietnamese speaker. In some cases, a family member assisted the resident with the survey.

To assess program impacts, the analyses focus on residents who completed both a Time 1 and Time 2 survey. We used repeated measures factorial ANOVAs to assess differences over time and between those who received HWS (high/low/no services users). This approach is used to measure an outcome variable over two or more time points, or when research subjects have undergone two or more conditions (e.g., high/low/no HWS). This method accounts for both time and conditions, assessing whether there is an interaction between these two factors on the outcome variable.

Qualitative Stakeholder Interviews

We conducted interviews with a variety of HWS stakeholders, resident services staff and residents between 2014 and 2016, to document how HWS was implemented. Several stakeholders and resident services staff were interviewed twice, early in the project and in the second year.

- 28 HWS staff and agency partners
- 18 resident services coordinators
- 4 resident advisory council members
- 2 group interviews, one with Korean and one with Mandarin language speakers
- 3 individual interviews with Russian residents
- 11 residents who had at least one HWS service/contact

Claims Data Analysis

Study participants were eligible for this study if they lived in one of the 10 properties during the timeframe in which the HWS program was in place and were enrolled in Medicaid or dually enrolled in Medicaid and Medicare. Residents with Medicare Advantage were excluded due to concerns that they might form a different population from the Medicaid-eligible residents, and claims for Medicare fee-for services clients were not available to the study team. A total of 1,395 residents fit the exclusion criteria for the evaluation, of which 500 received at least one recorded service from the HWS program (see Figure below). We were unable to match 186 residents with service to claims data, possibly because these residents did not fulfill eligibility criteria or their address or unique Medicaid or Medicare identifiers did not match to the claims address data.

The HWS program was implemented in September 2014 with initial staff beginning care coordination for the program in that month. To effectively assess the impact of the program, we established healthcare utilization for both the cases (residents who received program services) and controls (residents who did not receive program services) for at least six months before and after the program implementation date. However, as a program likely will not have an immediate impact, October 2014 was used as the index date for assessing program effect. Claims from April 2014 through October 2015 were used for the analysis; claims before October 2014 were considered pre-intervention claims, while claims after October 2014 were considered post-intervention claims. As claims processing can take up to three months, at the time the data was accessed October 2015 represented the latest date where claims data would be complete and accurate. Claims do not become available until, on average, three months after the date of service. The study team requested claims in February of 2016. This timeline was necessary to meet the deadline required by the funding agency (Oregon Health Authority).

Raw claims data was processed into four utilization types: emergency department (ED) visits, non-obstetric inpatient (IP) stays, outpatient mental health (OPMH) visits, and primary care physician (PCP) visits. We used strict HEDIS guidelines[4] to determine what constitutes each type of care. Chronic physical and mental health conditions were identified using ICD-9/ICD-10 diagnosis codes found in the residents' claims at any time during the study period.

The team considered whether it was possible to examine the timing of HWS team contacts with residents who were hospitalized. Because the claims data was aggregated at a person level for each individual in the analysis, establishing hospitalization dates would require that claims data be analyzed at the individual claim level. Our concern is that using claims level data runs an increased risk of identifying individuals through their protected information—this is typically avoided without clear justification. In the present case, these risks are further exacerbated by the small population of interest and the rare event type (hospitalization), which additionally means the sample size might not support the type of analyses required to report significant results.

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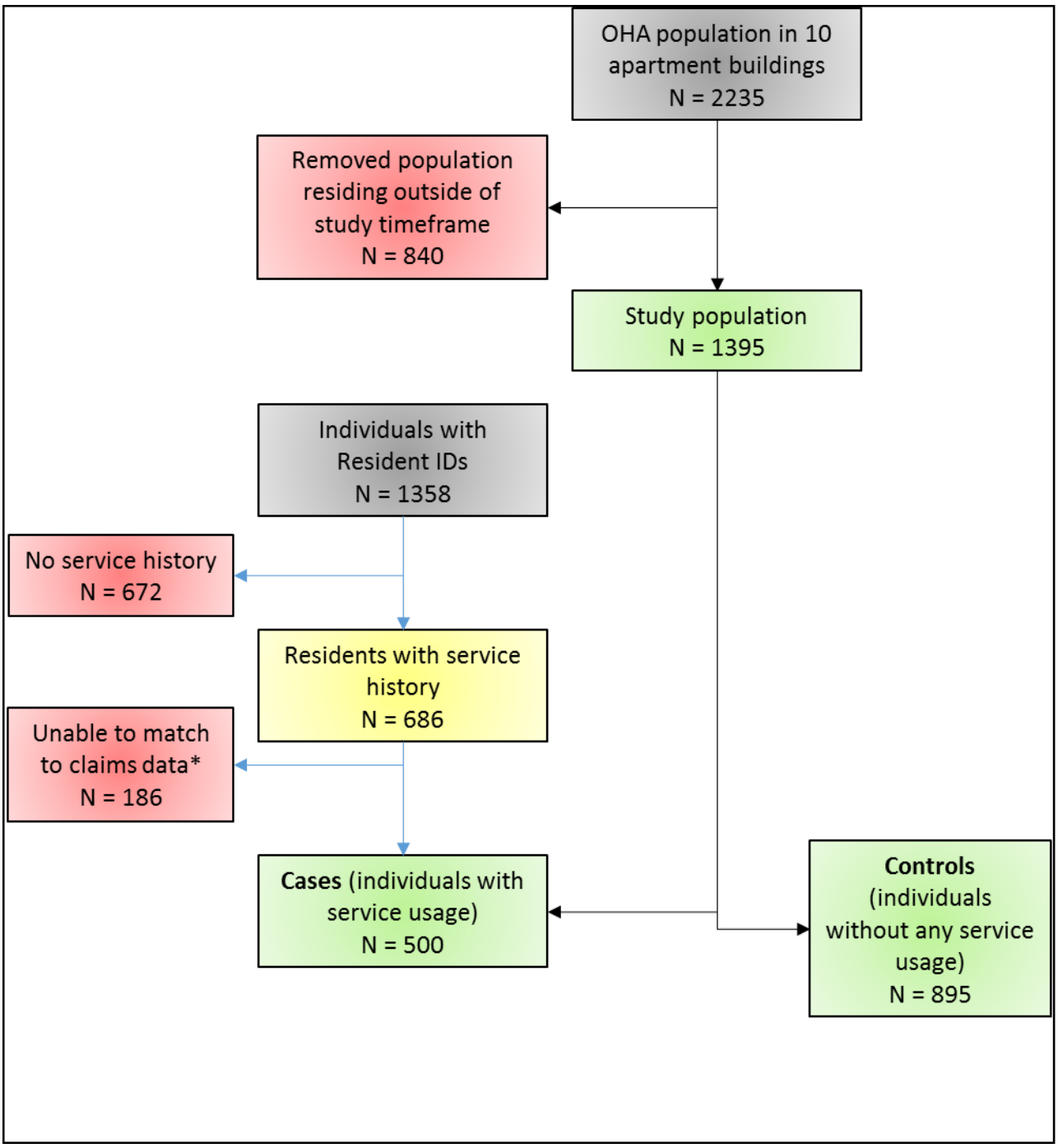
[4] National Committee for Quality Assurance. (2016). *Healthcare Effectiveness Data and Information Set* (HEDIS®). Washington, DC: National Committee for Quality Assurance.



We assessed baseline demographic characteristics of the case and control groups. Demographics included age, sex, race, key mental health diagnoses, and key physical health diagnoses. Run charts were used to assess the trends in claims utilization and costs across the study period for each of the four utilization types. Run charts count the number of events or sum the costs associated with the event type for each month and then divide this by the count

of eligible members in each month. This results in an estimate of average utilization or cost per member per month for the case and control populations.
Prior to conducting statistical analyses, members with outlying total medical expenditures (top 5% of claims) were removed from the study population. The control population was then matched to the case population using a 1:1 ratio on the presence or absence of chronic mental and physical diagnoses.

A Difference-in-Differences (DiD) analysis was conducted for each of the four utilization types to identify the true program effect. This analysis assesses whether the pre-post change in utilization or cost among the cases (i.e. those who used services) is different from the pre-post change in utilization or cost for the controls (i.e. those who did not use services). This was done using linear regression with interaction between case or control status and the effect of time (pre-intervention vs post-intervention). The interaction effect captures the impact of the program on the cases by removing the effect that time has had on the controls. Each regression was adjusted for the effect of other potential covariates, such as age, sex, and chronic conditions.

Study Limitations

Like all studies, this evaluation has limitations that must be considered when reviewing the findings. The study design was descriptive---residents were not assigned into treatment and control groups. The study design included all residents the buildings: all residents received a survey, and claims data were collected for all residents who lived in the buildings during the study period. While we did not have a comparison group of residents living in other publicly-subsidized buildings, we categorized the residents who received any HWS as the case (or treatment) group and the residents who did not receive services as the control group, and we analyzed differences between these groups. However, the study was not designed to assess causality of the program on resident outcomes, such as increased access to primary care physicians or food security, over time.

Assessing the effects of a program with multiple components provided by different agencies is challenging. Residents' health and social status is affected by many factors that could not be accounted for in this study. We know that at least three buildings were renovated during the study period, requiring residents to relocate to different floors within their building or to a hotel, temporarily. These and other events could have influenced resident outcomes.

Two administrative datasets were used: Medicaid and Medicare claims data, and FamilyMetrics data managed by HWS. As with all administrative data, there may be errors and missing data. For example, one service provider might choose to record a brief encounter with a resident as a social isolation intervention, while another might not. The FamilyMetrics data tracking did not start at the beginning of the project when the emphasis was on relationship building as well as defining services and processes. However, providers were encouraged to consistently enter all services/contacts. Some services became available after others, and so the numbers of these services/contacts might be lower than if they had been available during the entire project

period. Despite these limitations, the database gives a very useful overview of the type and frequency of services/contacts provided.

Finally, HWS was being defined and developed as a program of services even as it was being implemented. The evolving nature of the program makes assessing impacts and outcomes a challenge. However, the multiple sources of data used in this evaluation provide evidence that the program is having measureable impacts on access to primary care and mental health services, among other services. Because the program has an established dataset and data use agreements with multiple partners, we encourage a 12-month follow-up study of service use and health care expenditures to more reliably assess program impacts on health care costs and utilization.

Appendix 2: Housing with Services Categories

The following services were provided or coordinated on behalf of building residents. Information about each of these services was tracked in FamilyMetrics database by the various on-site staff and provider partners.

Table 15. Housing with Services Categories and Sub-Categories

Service/Contact Categories	Sub-categories
Advocacy	Educate/coach resident on self-advocacy; on behalf of resident to outside agency;
Assessment	Initial resident assessment; intake; activities of daily living; individual assessment
Benefits/Insurance Access	General relief; prescription; Medicare; Medicaid; Veteran's Administration; social security; SSI/SSDI; utilities; forms; SNAP; long-term services; low-income subsidy program; long-term disability; private health insurance; energy assistance; burial policy; pension;
Case Management	Linked with outside case management (CM) service; developed CM plan; implemented CM plan;
Conflict Resolution	Eviction prevention; resident-staff conflict; resident-resident conflict; resident-family conflict; resident-caregiver conflict; intervention requested by management;
Crisis Intervention/Support	Adult Protective Services; psychiatric emergency; 911 call; intervention requested by management; policy safety check; assistance with disastrous event; response to critical event/ suicide prevention; bereavement;
Education/Employment	Vocational/job training; volunteering
Fair Housing Issues	ADA/Fair housing education; obtain fair housing counsel
Family Support	Counseling/education; information exchange; transition/move-out; bereavement
Information and Referral	General information; shared quality time; flyer; gave list of services; consumer protection; community newsletter
Healthcare/Services	Physician appointment; durable medication equipment; physician referral; hospice; consult with discharge planner; health clinic; medical bills; rehabilitation; exercise; outpatient services; health education; medicine education; home health; smoking cessation; nutrition education; new patient forms; prescriptions; fall prevention; hospital/facility discharge; hospital admission; blood pressure check; medication management; palliative care
Home Management	Hoarding/clutter; reasonable accommodation; bills; financial management; donations/contributions; mail; telephone; pest control; pet issue; maintenance
Homemaker	Household goods; inspection failure follow-up; personal care; general housekeeping;
Isolation Intervention	Encouraged involvement in social activities; socialization; resident-resident networking; Give2Get activity

Lease Education	Eviction prevention
Legal Assistance	Personal identification card
Meals/Food Access	Home delivered meals; food bank/food distribution; nutrition supplement; congregate meal site; farmer's market; healthy eating
Mental Health Services	Memory issues; depression; anxiety; attention; communication problems; impulse control; paranoia; aging issues; mood swings; delusions; chronic illness; chronic pain; social isolation; grief/loss; motivation; discrimination; chronic pain; psychosis; addiction/substance abuse; mania/hypo-mania; multicultural concerns; life transitions; relationship issues; eating disorder; caregiver issues; financial issues; trauma/abuse; traumatic brain injury; addiction/gambling; hallucinations; suicide/self-injury; hoarding
Monitoring Services	Follow-up with resident; follow-up with service provider; telephone reassurance; home visit; follow-up after ER visit; follow-up after hospitalization
Outreach	Relationship building; invitation or encouragement to attend event or activity; new resident contact; outreach to non-resident neighbors; introduction to service coordinator
Resident Association	Encourage resident to join; assistance with start-up; assistance with operations
Substance Abuse	Education/preventive services; referral to provider; intervention service; link to outside provider;
Transfer	Other apartment complex; group home/assisted living; transition back to building; family
Translation/Interpretation Service	Written documents
Transportation	Non-emergency medical transport; medical transport; bus pass; public transportation
Other	

Appendix 3: Comparison of High versus Low HWS Utilizers

The below information is based on data tracked by HWS staff. It indicates that the difference in use among high versus low utilizers was statistically significant for 11 of the 19 service categories.

Table 16. Comparison of High Versus Low HWS Users

	High Utilizers			**Low Utilizers**			
	M	SD	n	M	SD	n	Sig.
Advocacy	4.06	3.67	49	2.50	1.25	18	**
Assessment	2.22	.67	9	2.79	1.08	19	ns
Benefits	4.70	3.19	84	2.63	1.68	94	***
Case Management	3.95	3.35	37	2.33	.93	57	**
Conflict Resolution	3.86	3.59	14	2.00	< .01	3	ns
Crisis Management	5.21	5.08	19	2.88	1.13	8	ns
Family	2.22	.67	9	2.25	.50	4	ns
Information & Referral	4.71	3.79	79	2.70	1.17	53	***
Health Care	13.55	12.99	145	3.48	2.26	293	***
Isolation	20.75	27.52	112	3.99	3.11	91	***
Meals	4.90	5.97	21	2.33	.82	6	ns
Mental Health	17.17	15.60	115	5.35	4.64	71	***
Monitoring	12.49	12.95	107	4.04	2.73	174	***
Outreach	8.47	6.30	155	3.28	1.98	169	***
Resident Association	3.15	1.07	13	2.00	< .01	2	ns
Substance Abuse	2.50	1.00	4	5.00	4.24	2	ns
Translation	2.25	.71	8	2.33	1.00	9	ns
Transportation	2.83	1.42	18	2.00	.58	7	*
Other	2.87	3.55	68	1.41	.80	17	**

* $p < .05$; ** $p < .01$; *** $p < .001$; ns = not significant; SD = standard deviation from mean

Appendix 4: Comparison of all Survey Respondents for Time 1 and Time 2

The following tables present summaries of survey respondents at two time points. Time 1 (T1) occurred before the launch of HWS, and Time 2 (T2) was done in the winter of 2016. We cannot assume that differences between unmatched T1 and T2 respondents are due to the HWS program because the below tables report all, unmatched respondents. However, it is useful to understand characteristics of all survey respondents at each time point.

Table 17. Profile of all Survey Respondents in the Participating Properties

		T1, %	T2, %
Gender	Men	45.8	48.7
	Women	54.1	50.7
Age	<65	49.1	41.7
	≥65	50.9	58.3
Race/ethnicity	White	63.7	63.4
	Black	5.5	5.6
	Asian	17.9	21.1
	Hispanic	3.4	2.8
	Other	9.8	7.2
Marital status	Married	15.2	15.2
	Widowed	13.7	15.4
	Divorced/Separated	39.8	41.3
	Never married	31.2	28.1
Birth country	United States	76.6	73.8
	Non-US born	23.4	26.2
Primary language	English	79.5	75.6
	Asian language	15.0	20.7
	Other	5.5	3.7
Annual income	None	17.1	12.0
	$1-<$11,000	59.1	58.1
	≥$11000	23.8	29.9
Time 1 sample = 544; Time 2 sample = 511 Time 1 mean age: 65, age range 24-96 Time 2 mean age: 67, age range 26-96			

Table 18. Profile of all Survey Respondents in the Participating Properties

	T1, %	T2, %
Diabetes or sugar diabetes	22.2	22.5
High blood pressure/hypertension	49.8	53.5
Heart trouble or heart disease	21.7	21.9
Liver disease	10.1	10.5
Severe vision problems	17.1	18.1
Depression	42.6	40.0
Schizophrenia, bipolar disorder, other MI*	15.4	15.8
Sleep disorder/sleep apnea	30.3	31.0
Dementia (such as Alzheimer's Disease)	2.2	2.5
Severe dental health problem	*	22.9
Asthma	20.8	12.8
COPD, emphysema, chronic bronchitis	16.4	17.3
Kidney problems	11.2	9.3
Acid reflux	28.5	26.1
Severe hearing problems	8.3	9.1
Anxiety	36.9	29.9
Post-traumatic stress disorder (PTSD)	21.0	19.2
Developmental or intellectual disability	9.0	5.0
Addiction to alcohol or drugs	9.4	12

*MI=mental illness; Not asked at T1

Table 19. Self-rated Health, all Survey Respondents

	T1, %	T2, %
Fair or poor	40.8	42.6
Good or excellent	59.24	57.4

Table 20. Access to Food in the Past 30 Days, all Survey Respondents

	T1, %	T2, %
Concerned about having enough food to eat	29.2	20.5
Ate less than s/he felt they should because there wasn't enough money to buy food	25.8	17.0
Was hungry but didn't eat because s/he wasn't able to get out for food	17.8	10.4

Table 21. Self-reported Healthy Activities, all Survey Respondents

	T1, %	T2, %
Engaged in physical activities, past 30 days	74.7	78.1
Got a flu shot, past 12 months	65.8	73.7
Had a health screening, past 12 months	83.5	82.9

Table 22. Memory Problems, Fall, and Medication Adherence, all Survey Respondents

		T1, %	T2, %
Memory			
	Difficulty remembering or concentrating		
	None	36.7	42.1
	Some	63.3	57.9
	Frequency of cognitive difficulties		
	Never	20.5	22.6
	Sometimes	56.0	57.1
	Often/all the times	23.5	20.4
	Level of difficulty remembering		
	Difficulty remembering nothing	16.7	22.0
	Difficulty remembering a few things	64.1	64.7
	Difficulty remembering a lot, almost everything	19.2	13.3
Falls			
	Fell in the past year	39.7	35.7
	Worried about falling	46.6	45.5
	Lost some feeling in his/her feet	31.8	27.2
Medication use and adherence			
	Take medication	89.0	87.3
	Low adherence to medication regiment	48.9	44.0
	Receives help with medications	17.2	15.3

Table 23. Satisfaction with Building and Neighborhood, all Survey Respondents

	T1, %	T2, %
Satisfied with apartment building		
Satisfied	74.6	76.7
Dissatisfied	10.0	8.5
Neither	15.4	14.8
Satisfied with neighborhood		
Satisfied	75.4	76.0
Dissatisfied	12.4	9.5
Neither	12.2	14.5

Table 24. Social Integration, all Survey Respondents

	T1, %	T2, %
High level of isolation	48.4	54.9
Low level of isolation	51.7	45.1

Table 25. Health Service Use in the last 6 Months, all Survey Respondents

	T1, %	T2, %
Has a primary care provider	91.4	93.8
Two or more doctor visits	72.2	62.6
Went to the emergency room at least once	33.9	30.4
Overnight hospital stay at least once	16.8	15.4

Table 26. What do you do when you feel Sick? All Survey Respondents

	T1, %	T2, %
Wait until the CareOregon nurses are in my building*		10.0
Call a doctor or other care provider's office	72.2	74.0
Take medication prescribed by a doctor or other care provider	78.3	80.9
Take over-the-counter medication	60.5	65.2
Call 911 or go to the hospital	45.0	35.9
Call a friend, neighbor or relative	56.4	47.9
Call the service coordinator building staff	21.3	16.1
Use meditation, visualization, prayer, or other ways of feeling better	47.6	50.3
Go to Urgent Care Quick Care	36.2	28.9
Wait to feel better	61.4	68.7

*This question was asked at T2 only

References

Billings, J. & Raven, M.C. (2013). Dispelling an urban legend: frequent emergency department users have substantial burden of disease. *Health Affairs, 32(12)*, 2099-2108.

Bostic, R. W., Thornton, R., Rudd, E. C., & Sternthal, M. J. (2012). Health in All Policies: The Role of the US Department Of Housing And Urban Development. *Health Affairs, 31(9*), 2130-2137.

Carder, P.C., Kohon, J., Elliott, S., et al. (2015). *Characteristics of Medicaid Recipients in Assisted Living, Residential Care, Memory Care, and Adult Foster Care in Oregon, 2013-14*. Retrieved from https://www.pdx.edu/ioa/sites/www.pdx.edu.ioa/files/Medicaid%20Summary%20Report%20%202013-2014.pdf

Harvard Joint Center for Housing Studies. (2015). America's Rental Housing: Expanding Options for Diverse and Growing Demand. Boston, MA: Author.

Health in Housing (2015). http://oregon.providence.org/our-services/c/center-for-outcomes-research-and-education-core/social-determinants-of-health/housing-and-health/

Housing with Services Year 1 Evaluation. (2015). www.pdx.edu/ioa/research-and-publications

Kania, J., & Kramer, M. (2011). *Collective Impact*. Retrieved from http://ssir.org/articles/entry/collective_impact

Krieger, J. & Higgins, D. L. (2002). Housing and Health: Time Again for Public Health Action. *American Journal of Public Health 92, 5*, 758-768.

Milbank Memorial Fund. (2006). *Public Housing and Supportive Services for the Frail Elderly: A Guide for Housing Authorities.* New York: Milbank Memorial Fund and the Council of Large Public Housing Authorities.

National Committee for Quality Assurance. (2016). *Healthcare Effectiveness Data and Information Set* (HEDIS®). Washington, DC: National Committee for Quality Assurance.

National Council on Aging (2015). https://www.ncoa.org/news/resources-for-reporters/get-the-facts/senior-hunger-facts/

Naylor, M. D., Aiken, L. H., Kurtzman, E. T., Olds, D. M., & Hirschman, K. B. (2011). The importance of transitional care in achieving health reform. *Health Affairs*, *30*(4), 746-754.

Stone, R. (2015). *Long-term care for the elderly*. Washington, DC: Urban Institute Press.

Tarasuk, V., Mitchell, A., McLaren, L., & McIntyre, L. (2013). Chronic Physical and Mental Health Conditions among Adults May Increase Vulnerability to Household Food Insecurity. *Journal of Nutrition, 143(11)*, 1785-1793.

Turner, S., Merchant, K., Kania, J., & Martin, E. (2012). *Understanding the Value of Backbone Organizations in Collective Impact*. Retrieved from http://ssir.org/articles/entry/understanding_the_value_of_backbone_organizations_in_collective_impact_1

U.S. Center of Budget & Policy Priorities. (2015). *United States: Fact Sheet Federal Rental Assistance*. Washington, DC: Author. http://www.cbpp.org/sites/default/files/atoms/files/4-13-11hous-US.pdf

2016 Survey
(see Year 1 report for 2014 survey)

Portland Community Health Survey

Portland State University is doing a study to learn more about the health and well-being of tenants who live in affordable apartment buildings. Tenants in 10 apartment buildings are being asked to answer these questions. The findings might help health and social service agencies plan services for people who live in your and other apartment buildings.

Thank you for taking the time to complete these questions. There are no wrong answers. Just pick the answer that is best for you.

If you want someone from the Portland State University study team to ask you the questions in person or by phone, please call (503) 725-5144.

Most questions in this survey ask you to **mark a box that looks like this** ☐. Feel free to mark the box like this ☒ or this ☑ or use your own mark.

Your Apartment Building and Your Neighborhood

1 How satisfied are you with your apartment building as a place to live?

- ☐ Very dissatisfied
- ☐ Dissatisfied
- ☐ Neither
- ☐ Satisfied
- ☐ Very satisfied

2 How satisfied are you with your neighborhood as a place to live?

- ☐ Very dissatisfied
- ☐ Dissatisfied
- ☐ Neither
- ☐ Satisfied
- ☐ Very satisfied

3 How long have you lived in this building?

_____ Years _____ Months

4 Have you moved to a different apartment in this building since July 2014?

- ☐ Yes
- ☐ No

5 In the past year, have you received a letter from management as a result of a failed apartment inspection?

- ☐ Yes
- ☐ No

6 Have you ever had trouble passing your apartment inspection?

- ☐ Yes
- ☐ No

7 Do you ever need help preparing for the annual apartment inspection?

- ☐ Yes
- ☐ No

Housing with Services

8 Have you heard of the Housing with Services program?

- ☐ Yes
- ☐ No
- ☐ Not sure

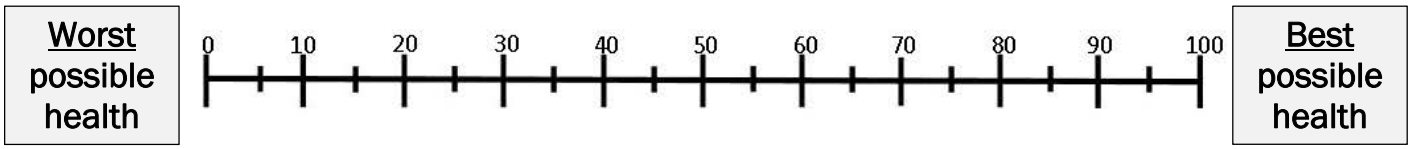
9 Please mark the box next to any of the following programs that you have used or attended in the past year:

- ☐ Asian Health Service Center
- ☐ Coffee Friday 1200 Building
- ☐ Give2Get
- ☐ Lifeworks NW counselor (Cary)
- ☐ Cascadia counselor (Suzie)
- ☐ Food pantry in your building
- ☐ CareOregon nurses (Judy, Autumn)
- ☐ Housing with Services staff (Alyssa)
- ☐ Clinic in the 1200 Building
- ☐ Other: _____ _____

Your Health Today

10 This question asks about **your health today**. Your best health would be marked 100 and the worst health would be marked 0, based on your opinion. ***Please mark a place anywhere on the line below that describes your health today. You do not need to circle a number.***

Your Health Today



11 Has a doctor or other health professional ever told you that you have:

(Mark all that apply)

- ☐ Diabetes or sugar diabetes
- ☐ High blood pressure/hypertension
- ☐ Heart trouble or heart disease
- ☐ Liver disease
- ☐ Severe vision problems
- ☐ Depression
- ☐ Schizophrenia, bipolar disorder, or other mental illness
- ☐ Sleep disorder/sleep apnea
- ☐ Dementia (Alzheimer's disease or similar)
- ☐ Severe dental health problem
- ☐ Asthma
- ☐ COPD, emphysema, chronic bronchitis
- ☐ Kidney problems
- ☐ Acid reflux
- ☐ Severe hearing problems
- ☐ Anxiety
- ☐ Post-traumatic stress disorder (PTSD)
- ☐ Developmental or intellectual disability
- ☐ Addiction to alcohol or drugs
- ☐ Other: _____

_____

12 Is there one doctor's office, clinic, or health center where you usually go if you are sick?

- ☐ Yes
- ☐ No

If YES, where is that place?

(Write here) _____

_____

13 Have you begun seeing a different primary care physician in the past year:

- ☐ Yes
- ☐ No

Falls and Health

14 I have fallen in the past year.

- ☐ Yes
- ☐ No

15 Sometimes I feel unsteady when I am walking.

- ☐ Yes
- ☐ No

16 I am worried about falling.

- ☐ Yes
- ☐ No

17 I have lost some feeling in my feet.

- ☐ Yes
- ☐ No

Healthy Activities

18 In the past 30 days, did you exercise?

- ☐ Yes
- ☐ No

19 Did you get a flu shot in the past 12 months?

- ☐ Yes
- ☐ No

20 Did you have a health screening in the past 12 months, such as a blood pressure check, colorectal exam (colonoscopy), or mammography?

- ☐ Yes
- ☐ No

Food Access

21 In the past 30 days, have you been concerned about having enough food to eat?

- ☐ Yes
- ☐ No

22 In the past 30 days, have you eaten less than you felt you should because there wasn't enough money to buy food?

- ☐ Yes
- ☐ No

23 In the past 30 days, have you ever been hungry but didn't eat because you weren't able to get out for food?

- ☐ Yes
- ☐ No

Your Health and Feelings

24 In general, would your say your health is:

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Fair
- ☐ Poor

25 In general, would you say your mental health is:

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Fair
- ☐ Poor

Support Services

26 In the past 30 days, did you receive help from another person or agency with shopping, preparing meals or food, housekeeping, or doing laundry? If yes, who helped?

- ☐ Family, friend, or neighbor
- ☐ Agency or paid staff
- ☐ Does not apply

27 In the past 30 days, did you receive help from another person or agency with going places beyond walking distance? If yes, who helped?

- ☐ Family, friend, or neighbor
- ☐ Agency or paid staff
- ☐ Does not apply

28 In the past 30 days, did you receive help from another person or agency with managing your money? If yes, who helped?

- ☐ Family, friend or neighbor
- ☐ Agency or paid staff
- ☐ Does not apply

29 In the past 30 days, did you receive help from another person or agency with personal care (bathing, showering, getting dressed, getting in/out of a chair, using the toilet)? If yes, who helped?

- ☐ Family, friend or neighbor
- ☐ Agency or paid staff
- ☐ Does not apply

Prescription Medicine

30 Do you currently take any prescription medicine?

- ☐ Yes
- ☐ No ➡ **(If NO, go to question 41)**

31 Do you sometimes forget to take your prescription medicine?

- ☐ Yes
- ☐ No

32 Over the past 2 weeks, were there any days when you did not take your prescription medication?

- ☐ Yes
- ☐ No

33 Have you ever cut back or stopped taking your prescription medicine without telling your doctor because you felt worse when you took it?

- ☐ Yes
- ☐ No

34 When you travel or leave home, do you sometimes forget to bring along your medication?

- ☐ Yes
- ☐ No

35 Did you take your prescription medication yesterday?

- ☐ Yes
- ☐ No

36 When you feel better, do you sometimes stop taking your prescribed medicine?

- ☐ Yes
- ☐ No

37 Taking medication every day is a real inconvenience for some people. Do you ever feel hassled about sticking to your medication plan?

- ☐ Yes
- ☐ No

38 How often do you have difficulty remembering to take all of your prescription medications?

- ☐ Never
- ☐ Sometimes
- ☐ Often

39 Does anyone help you with your medications by setting up pill boxes, helping you with injections, reminding you to take your medication, explaining the directions, or other help?

- ☐ Yes
- ☐ No

40 Do you believe you need to take your medication as prescribed?

- ☐ Yes
- ☐ No

Your Quality of Life Today

For each of questions 41 through 45 please mark the one box that best describes your quality of life today.

41 Mobility.

- ☐ I have no problems in walking about
- ☐ I have some problems in walking about
- ☐ I am confined to bed

42 Pain/Discomfort.

- ☐ I have no pain or discomfort
- ☐ I have moderate pain or discomfort
- ☐ I have extreme pain or discomfort

43 Usual Activities (work, shop, study, housework, leisure activities).

- ☐ I have no problems with performing my usual activities
- ☐ I have some problems with performing my usual activities
- ☐ I am unable to perform my usual activities

44 Self-care (dressing, bathing, grooming).

- ☐ I have no problems with self-care
- ☐ I have some problems washing or dressing myself
- ☐ I am unable to wash or dress myself

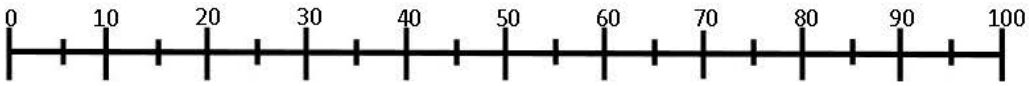
45 Anxiety/Depression.

- ☐ I am not anxious or depressed
- ☐ I am moderately anxious or depressed
- ☐ I am extremely anxious or depressed

46 This question asks about **your quality of life.** Your best quality of life would be marked 100 and the worst quality of life would be marked 0, based on your opinion. ***Please mark a place anywhere on the line below that describes your quality of life today. You do not need to circle a number.***

Your Quality of Life Today

Worst possible quality of life



Best possible quality of life

Memory and Thinking

47 Do you have difficulty remembering or concentrating? ***(Mark only one)***

- ☐ No difficulty
- ☐ Difficulty remembering only
- ☐ Difficulty concentrating only
- ☐ Difficulty remembering and concentrating

48 How often do you have difficulty remembering? ***(Mark only one)***

- ☐ Never
- ☐ Sometimes
- ☐ Often
- ☐ All the time

49 Do you have difficulty remembering a few things, a lot of things, or almost everything?

- ☐ Nothing
- ☐ A few things
- ☐ A lot of things
- ☐ Almost everything

Health and Supportive Services

50 How many people in your apartment building do you know well?

_____ ***(Write number)***

51 How many people in your neighborhood do you know well?

_____ ***(Write number)***

52 How many **friends** (including those who live in your neighborhood) do you see or hear from at least once a month?

- ☐ None
- ☐ 1 friend
- ☐ 2 friends
- ☐ 3 or 4 friends
- ☐ 5 to 8 friends
- ☐ 9 or more friends

53 How many **friends** (including those who live in your neighborhood) do you feel at ease with such that you can talk about private matters?

- ☐ None
- ☐ 1 friend
- ☐ 2 friends
- ☐ 3 or 4 friends
- ☐ 5 to 8 friends
- ☐ 9 or more friends

54 How many **friends** (including those who live in your neighborhood) do you feel close to such that you could call on them for help?

- ☐ None
- ☐ 1 friend
- ☐ 2 friends
- ☐ 3 or 4 friends
- ☐ 5 to 8 friends
- ☐ 9 or more friends

55 How many **relatives or family members** do you see or hear from at least once a month?

- ☐ None
- ☐ 1 family member
- ☐ 2 family members
- ☐ 3 or 4 family members
- ☐ 5 to 8 family members
- ☐ 9 or more family members

56 How many **relatives or family members** do you feel at ease with such that you can talk about private matters?

- ☐ None
- ☐ 1 family member
- ☐ 2 family members
- ☐ 3 or 4 family members
- ☐ 5 to 8 family members
- ☐ 9 or more family members

57 How many **relatives or family members** do you feel close to such that you could call on them for help?

- ☐ None
- ☐ 1 family member
- ☐ 2 family members
- ☐ 3 or 4 family members
- ☐ 5 to 8 family members
- ☐ 9 or more family members

58 In the past 6 months, how many times did you go to a doctor's office, clinic or other health care provider to get care for yourself?

- ☐ Never
- ☐ 1 time
- ☐ 2 or more times

59 In the past six months, how many times did you go to a hospital emergency room (ER) to get care for yourself?

- ☐ Never
- ☐ 1 time
- ☐ 2 or more times

60 In the past 6 months, how many times were you admitted overnight to a hospital?

- ☐ Never
- ☐ 1 time
- ☐ 2 or more times

61 In the past 6 months, did you or anyone else call 911 because you had health problems?

- ☐ Never
- ☐ 1 time
- ☐ 2 or more times

62 In the past 12 months, have you needed treatment or counseling for a **mental health condition or personal** problem?

- ☐ Yes
- ☐ No ➡ **(If NO, go to question 64)**

63 In the **past 12 months**, when you needed treatment or counseling for a **mental health condition or personal problem**, did you get all of the care you needed?

- ☐ I got **all** of the mental health care I needed
- ☐ I got **some but not all** of the mental health care I needed
- ☐ I got **no mental health care at all**
- ☐ I **didn't need** this kind of care in the past 12 months

64 **If you have a change in your health or start to feel sick at home, do you usually…**

Wait until the CareOregon nurses are in my building

☐ Yes ☐ No

Call a doctor or other care provider's office

☐ Yes ☐ No

Take medication prescribed by a doctor or other provider

☐ Yes ☐ No

Take over-the-counter medication

☐ Yes ☐ No

Call 911 or go to the hospital

☐ Yes ☐ No

Call a friend, neighbor, or relative

☐ Yes ☐ No

Call the service coordinator/building staff

☐ Yes ☐ No

Use meditation, visualization, prayer or other ways of feeling better

☐ Yes ☐ No

Go to an Urgent Care/Quick Care clinic

☐ Yes ☐ No

Wait to feel better

☐ Yes ☐ No

About You

65 What is your gender?

- ☐ Male
- ☐ Female
- ☐ Transgender

66 What is your marital status?

- ☐ Married/Partnered
- ☐ Widowed
- ☐ Divorced
- ☐ Separated
- ☐ Never married

67 Before moving into your apartment building, had you ever been homeless?

- ☐ Yes
- ☐ No ➡ **(If NO, go to question 70)**

68 Before you moved into your apartment building, had you been continuously homeless for more than 1 year?

- ☐ Yes
- ☐ No

69 What is the total amount of time that you have been homeless in your entire life?

- ☐ 0–1 year
- ☐ 2–3 years
- ☐ 4–6 years
- ☐ 7–9 years
- ☐ 10 or more years

70 In what year were you born?

_____ *(Write number)*

71 The language I usually speak at home is: _____

72 In what state or country were you born? _____

73 Do you now live alone?

- ☐ Yes
- ☐ No

74 What is your race? ***(Mark all that apply)***

- ☐ White
- ☐ Black or African American
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Native Hawaiian; Pacific Islander
- ☐ More than one race, multi-racial
- ☐ Other: _____

75 Are you Hispanic, Latino/Latina, or of Spanish origin?

- ☐ Yes
- ☐ No

76 What was your annual income last year from all sources: *(Mark only one)*

- ☐ No income
- ☐ $1 to $4,999
- ☐ $5,000 to $7,999
- ☐ $8,000 to $10,999
- ☐ $11,000 to $13,999
- ☐ $14,000 to $16,999
- ☐ $17,000 to $19,999
- ☐ $20,000 or more

77 Is your primary income from SSI ($733 per month)?

- ☐ Yes
- ☐ No

Thank you for completing our survey!

If you have concerns about your health or getting help that you might need, contact resident services or call the Aging & Disability Resource Center toll-free at 1-855-673-2372 or visit the website at https://www.adrcoforegon.org