Evaluation of an Anti-Displacement Strategy: Social, Physical and Health Effects

2018 Evaluation Report
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About the Human Services Research Institute: The Human Services Research Institute (www.hsri.org) is a nonprofit, mission-driven organization that works with government agencies and others to improve health and human services and systems, enhance the quality of data to guide policy, and engage stakeholders to effect meaningful systems change.
We would like to thank the team at NAYA Family Center for their partnership and collaboration for the evaluation of the Critical Home Repair, Weatherization, and Anti-Displacement Program:

Oscar Arana
Eron Riddle
Barry Reardon

~

Thank you to the all the homeowners who completed our survey, the homeowners who graciously allowed us into their homes for in-person interviews, and the homeowners and their families who participated in the focus group held at NAYA Family Center.

Our deepest gratitude,

The Evaluation Team at HSRI
Executive Summary

Project Background

The Native American Youth and Family Center (NAYA) offers a Critical Home Repair, Weatherization, and Anti-Displacement Program that provides no-cost home repairs and energy efficiency upgrades to low-income homeowners in Portland, Oregon. Through the program, NAYA connects homeowners with contractors to conduct critical safety and health-related repairs that range from mold and mildew treatment to insulation, roof repair, and gutter replacement.

What started as a pilot program in the Cully neighborhood in Northeast Portland has expanded to the entire Portland city limits. Thus far, the program has served over 100 households across 17 Portland neighborhoods. Many of the issues that are ameliorated through the program are serious and alarming—from black mold to lack of heating or ventilation. Some low-income homeowners reported cold homes, even using kitchen stoves as their primary home heating mechanisms, prior to the furnace upgrades provided through NAYA’s funding sources.

To better understand the safety, health, and stability outcomes of the program and the experience of the homeowners involved, NAYA engaged the Human Services Research
Institute (HSRI) to conduct in-depth interviews and surveys with program participants. The findings are discussed in this report.

Project Context

Portland faces a well-documented housing crisis; the mix of insufficient housing stock, rising rents and home prices, and aging homes has confounded and challenged homeowners, renters, and the unhoused—as well as city and county governments and nonprofits that seek to address these housing issues (Portland Housing Bureau, 2017).

Portland’s housing crisis is disproportionately felt by Portland’s historically marginalized communities, including low-income residents and communities of color. Home ownership is becoming increasingly unattainable, especially for low-income residents, and poor home maintenance and unsafe housing conditions are associated with a range of physical and emotional health conditions (Coley et al., 2013; Krieger & Higgins, 2002; Weitzman, 2013).

Conversely, access to safe, quality, and affordable housing is a basic yet powerful social determinant of health (CSH, 2018). Therefore, enhancing housing livability for Portland’s low-income homeowners through programs like NAYA’s Critical Home Repair program is a matter of urgency. Not only do such programs contribute to individual and household health and safety, they also enhance housing security and stability amid Portland’s housing crisis and the associated uncertainties.

Key Findings

Our homeowner engagement process—which included surveys and interviews with 39 homeowners—revealed that homeowners experienced a range of life quality enhancements as a result of participation in the program. The relationship between safe living environments and health is well-established, and homeowners systematically shared stories and experiences of the NAYA Critical Home Repair program, underscoring the association between repairs and weatherization upgrades and their physical and mental health.

Some key findings include:

- Homeowners experienced significant stress, concern, and anxiety related to critical repairs and weatherization services they could not afford prior to the program.

- Repairs substantially enhanced the quality of life of homeowners. For example, homeowners with mobility concerns benefitted from flooring upgrades or replacements, and homeowners with allergies or frequent illnesses were helped by mold remediation.

- Homeowners were not necessarily aware of issues within their own homes. Therefore, the expertise of qualified contractors was vital. Not all homeowners knew about pest or mold problems, severe leaks, or aging gutters—issues affecting their health and well-being.
Homeowners expected to remain in their homes longer, even indefinitely, based on the repairs and the renewed sense of hope they experienced as a result of the program.

In addition:

- Not only did the repairs themselves result in healthier living environments with less mold, fewer pests, and better air quality, but the repairs also propelled homeowners toward other health-associated behaviors, such as cultivating relationships with neighbors and cooking meals at home.

- Strengthened relationships—an important social determinant of health—resulted from the program, with homeowners reporting more quality time with family members and friends in their safer and more accessible homes.

- There were also identity and cultural benefits; several homeowners planned on keeping their homes in their family and even passing them on to children or grandchildren in the future—realities made more possible by the program investments.

**Partnerships**

Ultimately, local partnerships facilitated the program and its success. Strong community partnerships have been developed, allowing NAYA to leverage and intricately braid local resources to fill funding gaps that occur when grant funding restrictions limit their use to specific applications or locations; together with the pairing of funding received through the Meyer Memorial Trust and the Portland Housing Bureau this has ensured the seamless completion of extensive housing upgrades necessary for homeowners’ safety and security. This approach continues to be a distinguishing feature of NAYA’s home repair program.

Through this approach, homeowners across Portland have experienced a range of enhanced outcomes. NAYA’s Critical Home Repair program represents a step in the ongoing and complex process of addressing Portland’s housing shortages, inequities, and safety issues. Although the city and county face challenges, there are also considerable resources here—chiefly the many talented and passionate nonprofit and public-sector stakeholders deeply committed to ensuring housing is safe and livable, and the homeowners invested in their neighborhoods and communities.
Homeowner Highlight

As a local teacher in 2004, Mila took advantage of a homeownership program that provided school teachers with the opportunity to purchase homes at low interest rates. She was thrilled to find a place just around the corner from her mother’s, and she lived there peacefully for the next several years. However, in the summer of 2017 a pipe unexpectedly burst in her crawl space, revealing an enormous amount of mold due to a previous, unknown leak. Unfortunately, the contractors she hired to repair the issues failed to complete the job, and the subsequent quotes she received varied by thousands of dollars—all of which she was unable to pay at the time. Fearing the worst, Mila’s mental health deteriorated, as she realized that she could no longer afford her home.

Fortunately, Mila was referred to NAYA’s Critical Home Repair program and, upon her approval, Mila’s home received some much-needed assistance. In addition to the mold remediation and pipe repair, NAYA’s partner contractors addressed a number of other issues: insulating the attic and repairing her kitchen windows—preventing them from leaking water into her home; and repairing siding that had been damaged by previous water leaks.

Ultimately, Mila experienced an immense sense of relief, knowing that she no longer has to worry about the possibility of losing her home. Mila now feels confident she can remain in her home, and once again feels content in the house she’s made her home, "I enjoy being in my house a lot more now. I can just cozy up anywhere in the house and feel good. I feel a lot more comfortable."
Introduction

Background

The Native American Youth and Family Center (NAYA) offers a Critical Home Repair, Weatherization, and Anti-Displacement Program that provides home repairs and energy efficiency upgrades to low-income homeowners in the Portland metro area. While initially conceptualized in 2014 as a weatherization and anti-displacement project for homeowners in Portland’s Cully neighborhood, project staff soon found that housing conditions for low-income homeowners were significantly worse than expected. Black mold, failing roofs, little to no heat, and other serious issues emerged, and most homeowners needed help addressing these critical issues before weatherization could even be considered.

In subsequent years, NAYA’s Critical Home Repair program broadened both its service array and its target population, providing critical repairs in addition to weatherization services to anyone living within Portland city limits. Now in its fifth year, the program has served over 100 households across 17 Portland neighborhoods, and it continues to operate with an overarching goal of improving health and life quality outcomes for program participants.
Program Overview

The NAYA Critical Home Repair program leverages funds from various sources, including the Meyer Memorial Trust and the Portland Housing Bureau, to offer no-cost opportunities for individuals and families that meet income requirements to receive home repair and weatherization services, ranging from mold and mildew treatment to insulation, roof repairs, and other critical home repairs (see sidebar). Most participants are referred through local community organizations (e.g., Hacienda Community Development Corporation, Habitat for Humanity, REACH Community Development) as well as internal NAYA staff and programs. Once an interest form has been completed and a participant has been accepted, the NAYA program manager and an approved partner contractor visit the home to conduct a home assessment. The assessment consists of a home walkthrough, a participant survey, and radon and indoor air quality tests. Contractors then work with the program coordinator to develop a final scope of work, ensuring that the home’s most critical needs are prioritized and that home repair services are bound within project budget parameters.

The ultimate goal is to prevent homeowner displacement and neighborhood gentrification - a problem particularly seen in Portland neighborhoods where low-income and communities of color have traditionally resided.

It is known that poor housing conditions such as problems with heating, plumbing, and electric deficiencies; roofing problems and water leaks; dilapidated structures; and ventilation issues are all associated with a wide range of health problems, including unintentional injuries, asthma and other respiratory illnesses, cancer, and emotional and behavioral disorders (Coley et al, 2013; Krieger & Higgins, 2002; Weitzman, 2013). In
fact, housing is one of the best-researched social determinants of health, and a wide array of housing interventions have been found to improve health outcomes and decrease health care costs (Housing and Health, 2018). Thus, a goal of this evaluation was to understand the extent to which home improvements made a difference to participating homeowners’ health.

In recent years, the number of health and home repair programs has grown, and while specific interventions recommended to improve the health of home occupants vary across programs, most prioritize the seven principles of a healthy home, developed by the National Center for Healthy Housing’s Healthy Homes Training Center, which include ensuring that a home is:

1. Dry,
2. Clean,
3. Safe,
4. Ventilated,
5. Pest-Free,
6. Contaminant-Free, and
7. Maintained (National Center for Healthy Housing, 2010).

While NAYA’s Critical Home Repair program has not explicitly identified these principles as overarching guidelines, interviews with program participants suggest it operates under these assumptions and provides low-income homeowners with assistance in each of these core areas.

Report Purpose

This report provides an overview of NAYA’s Critical Home Repair program, using in-depth interviews and surveys completed by program participants to understand its impact. Overarching themes are categorized and described, most prominently homeowners’ experiences of improved safety, health, and stability outcomes. Related research is discussed.
55% of Oregon housing was built before 1978 and is likely to contain lead-based paint; 12% was built before 1940.

In 2016, 331 Oregon children tested had an elevated blood lead level (5 μg/dL or more); 14 of them had blood lead levels of 10 μg/dL or more.

In 2016, unintentional falls were responsible for 658 deaths among Oregonians over the age of 65.

Over 75,000 children and 350,000 adults in Oregon have current asthma, about 9% and 11% of the population for each group, respectively (2015).

Source: National Center for Healthy Housing, 2018
Participant Demographics & Health Risks

Across the four years the program has been in operation, it’s served 122 households and impacted 260 Portland residents,¹ most of whom are particularly vulnerable to poor health outcomes. Research has shown that at all income levels, those with lower incomes are less healthy, physically and mentally, than those with higher incomes — for example, middle-income earners are healthier than low-income earners, but less healthy than those with incomes above their own (Braveman et al., 2010; Pollack et al., 2013; Schiller et al., 2011; Woolf et al., 2015); and low-income adults are nearly five times as likely to report being in fair or poor health compared to adults with household incomes at or above 400 percent of the federal poverty level (Braveman & Egerter, 2008). Homeowners must meet strict income requirements to be eligible for program services (Figure 1), thus all program participants, fall into this at-risk population.

Figure 1
NAYA’s Critical Home Repair Program Income Requirements

<table>
<thead>
<tr>
<th>Household Size</th>
<th>Maximum Income</th>
<th>Household Size</th>
<th>Maximum Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$28,500</td>
<td>5</td>
<td>$44,000</td>
</tr>
<tr>
<td>2</td>
<td>$32,600</td>
<td>6</td>
<td>$47,250</td>
</tr>
<tr>
<td>3</td>
<td>$36,650</td>
<td>7</td>
<td>$50,500</td>
</tr>
<tr>
<td>4</td>
<td>$40,700</td>
<td>8</td>
<td>$53,750</td>
</tr>
</tbody>
</table>

¹ An additional 50 households are expected to be served in 2018-19.
Amplifying participants’ risk for poor health outcomes are their accompanying characteristics. Nearly half of the homeowners served through NAYA’s Critical Home Repair program live by themselves (48%), had received no more than a high school education (42%), and nearly 80% were over the age of 55. Individually, each of these characteristics places participants at high-risk for poor health outcomes; the cumulative effects for participants who hold several of them place them in an especially vulnerable category (Cutler & Muney, 2006; Kharicha et al., 2007; Rajda & George, 2009; Williams, & Sternthal, 2010).²

For each of the above pie charts n=122.

**Participant Outcomes**

In-depth interviews and participant survey results suggest that NAYA’s Critical Home Repair program has resulted in enhanced safety, improved health, and increased stability for participating homeowners. These results are interconnected, with the impact of repairs and weatherization projects improving safety and health outcomes—and ultimately increasing the likelihood of participants remaining in their homes. Safety-related repairs and upgrades enhanced both the physical and mental health of participants; the conditions associated with living in deteriorating housing exacerbated physical health conditions for some, and stress decreased in the knowledge that homeowners could safely remain in their homes after necessary repairs and upgrades had been completed.

Homeowners also described how their general quality of life improved as a result of the program. One couple who had their aging furnace replaced through NAYA’s Critical Home Repair program reflected on:

- The impact to their safety, through better home temperature regulation;
- The impact to their physical health, as health conditions such as arthritis were no longer exacerbated because of their cold home;
- The impact to their mental health, as they felt less concern about the possibility of a fire; and
- The impact to their financial stability, as they realized lower energy costs.

The program also had tangential, but not unsubstantial, benefits to participants’ relationships and sense of home. The couple above, for example, experienced enhanced

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² Additional demographic information on program participants can be found in Appendix B.
relationships with their family as their home was safer and more welcoming for their grandchildren after the furnace was replaced.

Below, we elaborate on the program’s impacts to safety, health, and stability—as well as relationships—based on results from the participant survey and interviews.

Health and Well-Being Outcomes

Safety

Participants reported considerable threats to their safety prior to involvement in the program; these threats resulted in worry, distress, and anxious thinking. Examples of reported threats included fear of electrical fires, lead poisoning, and of falls due to unstable or uneven flooring. The program funded multiple repairs that resulted in safer, more habitable living environments, as well as less stress for homeowners. For example, contractors removed and replaced windows sealed with lead-based paint. They also engaged in electrical work such as rewiring to eliminate exposed or hot wires or outlets; they repaired and combined electrical paneling and ensured that homeowners understood what panels controlled—which not only enhanced safety but also homeowners’ sense of agency, ownership, and familiarity with their homes, solidifying the experience of their residence as home and a place of belonging.

Other safety repairs included those that enhanced homeowner mobility, such as replacing floors that were hazardous or uneven, adding external motion sensor lights so participants could safely navigate outdoors in the dark, and replacing porch infrastructure to ensure safe entrance and egress from homes. One participant described health conditions that impaired mobility for both herself and her husband and noted that the new flooring allowed them to move around the house with ease: “He’s not very steady on his feet and I’m not either since I had my knees replaced, but now we can walk around and not have to worry about stumbling.”

Other safety repairs were even more substantial, such as replacing leaky roofs, repairing major plumbing issues, and replacing or upgrading aging furnaces and water heaters that posed fire threats. Another participant described the comfort that came along with a new furnace, noting, “It’s safer in here now, I feel comfortable having people in the house without the threat of having a fire.” Many participants also had pest issues as a result of or in addition to other safety threats, so some services included pest elimination and control, including getting rid of pests such as rats and rat nests and sealing off unintentional entrances to basements, such as cracks in foundations.

Many of the repairs were done prior to weatherization—that is, they were necessary for homes to become safely and efficiently weatherized. Some homeowners reported no

He’s not very steady on his feet and I’m not either since I had my knees replaced, but now we can walk and not have to worry about stumbling.

Homeowner
functioning heat, space heaters that were inefficient and could only heat one room at a time, or the use of kitchen stoves as heaters.

Specific weatherization activities included:

- Replacing thermostats for more accurate temperature control
- Enhancing home ventilation
- Adding or replacing insulation
- Air sealing to avoid leaks and unsealing windows to increase ventilation and air flow
- Adding upgraded windows, such as storm windows or double-paned windows
- Installing screens in windows
- Upgrading heating and cooling systems or devices for better temperature control
- Replacing gutters in preparation of rain season

Not only did the repairs enhance the safety of the homes, but participants described how the repairs and weatherization projects themselves were done safely, such as carefully wrapping and removing windows painted and sealed with lead paint, ensuring that participants remained safe throughout projects. Survey respondents further highlighted participants’ increased sense of safety after home repairs had been completed: 62% noted that the safety of their home had improved as a direct result of the home repairs. 3

Improved Health

Many safety upgrades impacted participant health and well-being. The elimination of pests, for example, not only created safer living spaces for homeowners but protected them from further pest control costs and from pest-related health threats such as rodent-borne illnesses. Participants noted that their physical and mental health improved as a result of upgrades to their homes, as their living conditions often exacerbated other chronic health conditions, such as cold homes increasing arthritic symptoms and the presence of mold exacerbating asthma, causing allergy-like symptoms, and leading to pneumonia. Several participants shared how weatherization and insulation-related services lessened the frequency of illnesses among family members, with one noting, “Putting in new windows in the children’s room and insulating the house really helps us to stay warmer, and there was a big difference in how little we got sick after, compared to before when we all had multiple colds.”

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3 Complete survey findings can be found in Appendix C.
there was a big difference in how little we got sick after, compared to before when we all had multiple colds.”

Mold was also a common issue among participants, including black mold, so many repairs included mold mitigation or remediation. In some cases, mold mitigation was the intention of the repair, while in other cases, contractors found mold while addressing other home safety or weatherization issues. In both cases, mold was removed or mitigated. Homeowners reported “extensive” work to address mold-related issues, including mold due to significant leaks, pipes bursting, etc. Mold in particular caused homeowner stress and worry not only because of its impact on physical health but also because of the cost of extensive mold remediation.

Participants also reported improvements to breathing, as home air quality improved when ventilation was upgraded, and the addition of heaters not only resulted in warmer living space but better air quality with less chimney smoke in homes. These results often led to improvements to participants’ mental health and well-being as well. Depressive and anxiety symptoms, for example, lessened as projects were attended to and the stress of affording critical repairs diminished; one participant noted, “The electrical work that was done has taken a big load off my mind. The prior electrical work that was done in the 60s and 70s was done poorly and I was always worried about electrical fires.” In fact, the majority of participants interviewed noted improvements in their peace of mind or mental health symptoms, and survey respondents echoed this sentiment, with 79% reporting improved peace of mind about their homes’ condition, 66% reporting an improved quality of life, and 79% reporting improved comfort in their home after program services were provided.

I initially got all these different estimates—thousands of dollars in difference—I felt like I was going to be cheated. I looked all around trying to find help and then I found NAYA and their program, and not only did they help me, but I could trust them. They were totally honest and now I don’t have to worry about that part of my house.

Homeowner

*The upgrading of electrical panels improved safety and increased peace of mind*
Housing Stability

Safety- and health-related repairs and weatherization projects also decreased the likelihood of homeowner displacement and enhanced homeowner confidence that they could continue to live in their homes. Many of those who received services had considerable longevity in their homes: While some interview participants report living in their homes for as few as six years, others had lived in their homes for more than 40 years—and feared that limited resources to address pressing maintenance and repair issues would force them out. Home improvements and decreased home-related costs helped mitigate these fears. For example, participants who were interviewed described how more efficient insulation, temperature control, heating and cooling system upgrades, and energy efficient light bulbs decreased gas and electric bills, making remaining in their homes a more affordable and viable option. Survey respondents also highlighted the program’s impact on their plans to stay in their homes: 79% reported that the program improved their ability to remain in their homes for the foreseeable future.

Because of the costs of their homes and the rising housing costs in Portland, participants also shared that if they sold or lost their homes they would not be in a position to purchase another home and would have to shift to renting, which would eliminate the protective factors associated with stable housing and housing costs. Many of the repairs and weatherization projects were also able to bring aspects of housing up to city or local code, enhancing resale possibility. This was important to those homeowners, for example, who reported plans to sell their homes and downsize when they retired.

Not only did the program enhance the stability of those living in the homes, but the stability of future generations; several participants shared their vision of passing down their homes to children or grandchildren. Some homeowners themselves had inherited their homes from parents, making it vital to retain their home within the family not only for

79%
Homeowners feel the repairs helped them to remain in their homes

62%
Homeowners feel safer in their homes

79%
Homeowners have better peace of mind about their home condition

58%
Homeowners are more able to maintain a comfortable temperature in their home

For each of the above, n=38.
housing security and asset building but also for familial and cultural retention.

Relationships and Sense of Home

As homeowners discussed their experience of NAYA’s Critical Home Repair services—through the survey and through interviews—it was also apparent that trust was a necessary precursor to engagement in the program. In some cases, homeowners hadn’t had repairs done previously because they did not trust the quotes they had received—noticing considerable differences in prices quoted. Some Native homeowners in particular emphasized their relationship with NAYA and trust in the organization as key to their willingness to move forward with repairs and weatherization projects. The Coalition of Communities of Color found that Native incomes in Multnomah County are typically half that of White households, making Native households more likely to qualify for programs like NAYA’s and less likely to afford housing maintenance and repair costs.

A sense of trust, both in program administrators and contractors who completed housing projects, allowed homeowners to feel at ease throughout the process. Clarity in the process and a trustworthy contact who kept in touch were appreciated by participants. Because the services were provided by a trusted organization, participants were confident that the repairs were of high quality, and many participants reported that the program addressed issues they weren’t aware of—such as replacing aging gutters and utilizing LED lights throughout homes.

Homeowners also referenced new or strengthened relationships with neighbors while repair projects were completed, and often referred neighbors to the program. Notably, participants reflected on the lasting nature of their strengthened relationships with neighbors, even several months after repairs were completed—noting more regular communication and less isolation.

Further, participants reflected on the ways they’d made their houses ‘homes’—by welcoming friends and family, planting trees, sharing meals—and how they experienced increased comfort in inviting others into their homes after the repairs because homes were more aesthetically pleasing and safety risks were mitigated. Homeowners no longer had to have guests keep jackets on indoors, for example, due to poor temperature regulation—and grandparents reported more time with children and grandchildren following repairs and upgrades.

Therefore, in addition to the immediate impacts to safety and health, the NAYA Critical Home Repair program had longer-term impacts on homeowner relationships and well-being. Strong relationships facilitate home as a place of culture, nurture, safety, equity, and bonding, which provides protective factors against poor health and other life quality outcomes experienced by low-income homeowners and people of color.

Program Limitations and Recommendations

All interview and focus group participants noted the high quality of the work completed through the NAYA Critical Home Repair program. Contractors were described as thoughtful and careful, and several described how contractors worked to avoid leaving
construction mess by laying out sheeting to collect debris – carefully hauling this away when work was completed.

However, one concern that emerged during a focus group held with elders at NAYA was the relatively few Native community members who have been served through the program. Underlining this concern is the result of an analysis of NAYA Critical Home Repair data which shows just 11% of 122 households served through the program included a Native community member. NAYA has made efforts to further expand its program into areas that include Native communities such as the Lents district; however, it is notable that one Native community member described hearing about the program through a partnering community agency, rather than through NAYA, even though she had been closely connected to NAYA in the past.

More outreach to publicize the program to Native community members would likely increase the number of program applications from this population. To increase the dissemination of program information outreach might be provided through social media outlets such as Facebook. It was noted that many Portland based Native community members read publications produced by Oregon tribes. These publications might also be used as a vehicle for outreach.

Finally, while many compliments were made regarding NAYA’s Critical Repair Program two recommendations were made by interviewees. One participant recommended that NAYA follow-up with participants when repairs have been completed so that feedback can be immediately provided.

The second recommendation was regarding the application. While the process itself was noted as easy, the interviewee suggested that the application font size should be increased to make the application form easier for older participants to read.
Homeowner Highlight

Jenny and Bill have lived in their home for over 30 years after having purchased it through a rent-to-own agreement with a kind landlord. However, after Jenny went on disability, the two struggled to live on their reduced income and were finding it difficult to afford upkeep on their aging home. Their furnace, which was situated on a dirt floor in the crawl space, was spewing dirt and dust particulates through the vents, exacerbating Jenny’s medical issues. Unfortunately, they simply couldn’t afford to repair it, and Jenny’s health suffered for several years.

When the furnace finally broke down last year, they scraped together $200 for a tradesman to fix it, however, after getting it running again he informed them that it was likely leaking carbon monoxide into their home, and that it may only last another six months. Frightened by the threat of carbon monoxide poisoning, they ceased using the furnace altogether. They hung blankets in the doorways and used a space heater instead, but were nervous using it when their small grandson visited due to the dangers it posed.

Fortunately, after a referral to NAYA’s home repair program, contractors were able to thoroughly upgrade their home, replacing the furnace and installing a carbon monoxide detector in addition to replacing their leaky roof that was causing additional damage to their home.

Jenny and Bill say the help they received through the program has been a real gift – they had known the roof was leaking but hadn’t realized how badly; it was a repair they couldn’t have financially managed themselves.

They say that now they can play outside with their grandson and when things start getting too achy and uncomfortable for Jenny she knows she can come back inside to a comfortable environment; she’s coughing less than in the past and the repairs have given them both a sense of safety and a new sense of relaxation and calm.
Housing Interventions & Life Quality Outcomes

The connection between health and housing is well established. Structural defects, ventilation issues, indoor air quality, and exposure to toxic chemicals, among other environmental concerns, all contribute to a wide array of poor health outcomes, and housing interventions have been shown to improve the health of home occupants (Housing and Health, 2018; National Center for Healthy Housing, 2009). Research has also shown that, in addition to improved short-term health outcomes for homeowners, housing interventions may also lead to a range of broader, and longer-term benefits. For instance, children have been found to be especially susceptible to the effects of poor housing (in terms of physical health, emotional and behavioral problems, and educational performance), and housing interventions have been found to improve outcomes for child participants (Coley et al., 2013; Hong & Piescher, 2012; Largo et al., 2011). Of even greater note, exposure to unfavorable living conditions in early childhood—beginning as early as the womb—can have a variety of negative effects on a person’s entire health and economic lifespan (Annie E. Casey Foundation, 2013; Halfon, 2014).

Further, some studies suggest there’s a significant societal cost associated with unhealthy housing in the form of a substantial economic burden. For instance, one study found that the costs for asthma due to one root cause in the home (i.e., dampness and mold) were estimated to total several billions of dollars (Mudarri & Fisk, 2007), while an even higher cost burden was attributed to unintentional injuries caused
by home hazards (Zaloshnja et al., 2005). More recent studies are now noting the long-term cost benefits of housing interventions, with significant decreases in annual health care and Medicaid costs being attributed to healthy homes and the remediation of home hazards (Gomez et al., 2017; Nevin et al., 2007; Nurmagambetov et al., 2011). Thus, housing interventions, particularly when offered to families with young children or populations vulnerable to poor health outcomes, may ultimately yield positive and longer-term benefits, beyond the measurable shorter-term outcomes.

Conclusion

Over the past several decades the evidence for varying types of home interventions has grown, with best practice recommendations shifting in recent years. While early interventions tended to be categorical, with programs addressing a narrow range of concerns such as lead poisoning or injury prevention, a growing body of research now suggests that multifaceted home interventions may produce more beneficial and lasting outcomes (Matte & Jacobs, 2000). In fact, the Federal Healthy Homes Workgroup (consisting of representatives from the Departments of Health and Human Services; Housing and Urban Development; Agriculture, Commerce, Labor, and Energy; and the Environmental Protection Agency) recommends looking at the home as a system and shifting toward a more comprehensive approach, prioritizing interventions that address multiple housing deficiencies within single programs (Federal Healthy Homes Work Group, 2013). Specifically, it suggests favoring interventions that address the Seven Principles of a Healthy Home (i.e., that homes should be dry, clean, safe, ventilated, pest-free, contaminant-free, and maintained), with the knowledge that housing-associated health concerns are often interrelated. For instance, excess moisture—whether caused by leaks, floods, or some other home deficiency—can contribute to a number of health hazards, including mold, peeling paint, and structural deterioration; the remediation of the primary issue may affect multiple endpoints, and multiple health concerns.

NAYA’s Critical Home Repair program does just that. As we heard through interviews with homeowners, the program is comprehensive in nature, with contractors performing critical home repairs that addressed multiple home issues—and health concerns. Repairs focused on ensuring that homes were dry, safe, and ventilated (among other healthy home principles), and contractors approached the homes holistically, addressing the most critical repairs first, but also undertaking a wide range of repairs to improve homeowners’ quality of life. Notably, participants described the overlapping and interrelating benefits of these home repairs, with physical health and safety outcomes precipitating further benefits, such as housing stability and improved mental health symptoms. Housing stability is of noticeable concern locally, as homeownership remains out of reach for many Portlanders, and especially for communities of Color, who continue to experience persistent disparities in homeownership rates (Portland Housing Bureau, 2018).

The relationship between safe living environments and health is clear, and homeowners impacted by NAYA’s Critical Home Repair program systematically shared stories and experiences of the program, underscoring the association between repairs and
weatherization upgrades and physical and mental health. Future research that incorporates more extensive and in-depth measures, and that follows multiple cohorts over time, may help to understand both the short- and long-term outcomes for program participants and contribute to the evidence-base for home intervention programs.
The ache for home lives in all of us. The safe place we can go as we are and not be questioned.

-Maya Angelou
Appendices

Appendix A: References


Appendix B: Participant Demographics

Figure 1: Most primary homeowners were female (n = 122)

71% Female 28% Male 1% Two-Spirit

Figure 2: Nearly half of homeowners lived alone (n = 122)

1 Person 45%
2 People 23%
3 People 14%
4 People 4%
5 People 7%
6 People 1%
7 People 3%
Figure 3: The majority of primary homeowners were 55+ (n = 122)

- 35-44 Years Old: 9%
- 45-54 Years Old: 12%
- 55-64 Years Old: 26%
- 65-74 Years Old: 27%
- 75-84 Years Old: 15%
- 85-94 Years Old: 11%

Figure 4: Nearly half of primary homeowners attained no more than a high school degree (n = 122)

- Some High School: 4%
- High School Diploma/GED: 38%
- Some Vocational Training: 7%
- Some Community College: 6%
- Some University/4 Year School: 15%
- Vocational Training Graduate: 11%
- Community College Graduate: 9%
- University Graduate: 9%
- Graduate Level Completion: 1%

Figure 5: Over half of primary homeowners were retired or unemployed (n = 122)

- 28% Not employed
- 43% Retired
- 26% Employed
- 3% Self-employed
Figure 6: Homeowners came from a range of racial backgrounds (n=122)

- African American/Black: 25%
- Asian/Pacific Islander: 7%
- Native American/Alaska Native: 11%
- White/Caucasian: 44%
- Other: 2%
- Did not identify: 11%

Figure 7: Over half of primary homeowners did not identify as Hispanic/Latino (n=122)

- 11% Hispanic/Latino
- 89% Not Hispanic/Latino

Figure 8: The majority of homeowners identified English as their primary language (n=122)

- 88% English
- 6% Spanish
- 6% Other
Appendix C: Survey Results

Question 1

<table>
<thead>
<tr>
<th>Duration</th>
<th>Percentage</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than one year</td>
<td>3% (1)</td>
<td></td>
</tr>
<tr>
<td>1-3 years</td>
<td>3% (1)</td>
<td></td>
</tr>
<tr>
<td>4-5 years</td>
<td>5% (2)</td>
<td></td>
</tr>
<tr>
<td>6-10 years</td>
<td>5% (2)</td>
<td></td>
</tr>
<tr>
<td>More than 10 years</td>
<td>84% (31)</td>
<td></td>
</tr>
</tbody>
</table>

Question 2

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family</td>
<td>3% (1)</td>
<td></td>
</tr>
<tr>
<td>Friends</td>
<td>0% (0)</td>
<td></td>
</tr>
<tr>
<td>Affordable housing</td>
<td>0% (0)</td>
<td></td>
</tr>
<tr>
<td>Neighborhood changing</td>
<td>3% (1)</td>
<td></td>
</tr>
<tr>
<td>Proximity to job</td>
<td>0% (0)</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>0% (0)</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>94% (34)</td>
<td></td>
</tr>
</tbody>
</table>
### Question 3

*Compared to before the repairs were made has:*

<table>
<thead>
<tr>
<th></th>
<th>Improved</th>
<th>Stayed the Same</th>
<th>Gotten Worse</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your belief that you will remain in your home for the foreseeable future (n=38)</td>
<td>79% (30)</td>
<td>18% (7)</td>
<td>0%</td>
<td>3% (1)</td>
</tr>
<tr>
<td>Your belief that you can remain in your home as you age (n=38)</td>
<td>68% (26)</td>
<td>24% (9)</td>
<td>0%</td>
<td>3% (1)</td>
</tr>
<tr>
<td>Your ability to move around your home without difficulty (n=37)</td>
<td>38% (14)</td>
<td>49% (18)</td>
<td>3% (1)</td>
<td>11% (4)</td>
</tr>
<tr>
<td>Your ability to afford living in your home (n=38)</td>
<td>39% (15)</td>
<td>37% (14)</td>
<td>11% (4)</td>
<td>13% (5)</td>
</tr>
<tr>
<td>Your peace of mind about your home’s condition (n=38)</td>
<td>79% (30)</td>
<td>8% (3)</td>
<td>8% (3)</td>
<td>5% (2)</td>
</tr>
<tr>
<td>The safety of your home (n=37)</td>
<td>62% (23)</td>
<td>24% (9)</td>
<td>3% (1)</td>
<td>11% (4)</td>
</tr>
<tr>
<td>Your quality of life (n=38)</td>
<td>66% (25)</td>
<td>26% (10)</td>
<td>0%</td>
<td>8% (3)</td>
</tr>
<tr>
<td>Your comfort in your home (n=38)</td>
<td>79% (30)</td>
<td>16% (6)</td>
<td>3% (1)</td>
<td>3% (1)</td>
</tr>
</tbody>
</table>

### Question 4

*Compared to before the repairs were made have:*

<table>
<thead>
<tr>
<th></th>
<th>Improved</th>
<th>Stayed the Same</th>
<th>Gotten Worse</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problems with mold (n=38)</td>
<td>24% (9)</td>
<td>18% (7)</td>
<td>3% (1)</td>
<td>55% (21)</td>
</tr>
<tr>
<td>Problems with damp (n=37)</td>
<td>38% (14)</td>
<td>19% (7)</td>
<td>0%</td>
<td>43% (16)</td>
</tr>
<tr>
<td>Problems with temperature (n=38)</td>
<td>58% (22)</td>
<td>29% (11)</td>
<td>0%</td>
<td>13% (5)</td>
</tr>
<tr>
<td>Problems with street noise (n=38)</td>
<td>26% (10)</td>
<td>34% (13)</td>
<td>3% (1)</td>
<td>37% (14)</td>
</tr>
<tr>
<td>Problems with odors (n=38)</td>
<td>32% (12)</td>
<td>21% (8)</td>
<td>0%</td>
<td>47% (18)</td>
</tr>
</tbody>
</table>
**Question 5**

<table>
<thead>
<tr>
<th>How would you rate the overall health of your family? (n=38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bad</td>
</tr>
<tr>
<td>Poor</td>
</tr>
<tr>
<td>Fair</td>
</tr>
<tr>
<td>Good</td>
</tr>
<tr>
<td>Excellent</td>
</tr>
</tbody>
</table>

**Question 6**

*Compared to before the repairs were made*

<table>
<thead>
<tr>
<th>Have</th>
<th>Improved</th>
<th>Stayed the Same</th>
<th>Gotten Worse</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problems with breathing (e.g. asthma/other respiratory problems etc.) (n=38)</td>
<td>18% (7)</td>
<td>29% (11)</td>
<td>3% (1)</td>
<td>50% (19)</td>
</tr>
<tr>
<td>Problems with allergies (e.g. itchy eyes, runny nose/congestion etc.) (n=38)</td>
<td>16% (6)</td>
<td>32% (12)</td>
<td>3% (1)</td>
<td>50% (15)</td>
</tr>
<tr>
<td>Problems feeling sick (e.g. colds, flu etc.) (n=38)</td>
<td>24% (9)</td>
<td>34% (13)</td>
<td>0%</td>
<td>42% (16)</td>
</tr>
</tbody>
</table>

**Question 7**

*How would you compare your overall health, or health of other family members, to before the repairs were made? (n=36)*

<table>
<thead>
<tr>
<th>Much worse</th>
<th>A little worse</th>
<th>About the same</th>
<th>A little better</th>
<th>Much better</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>0%</td>
<td>64% (23)</td>
<td>14% (5)</td>
<td>22% (8)</td>
</tr>
</tbody>
</table>

*Questions 8 & 9 were qualitative questions which contain confidential information, and thus results are not reported here.*
Appendix D: Methods & Limitations

Several research activities were undertaken to understand the impact of NAYA’s Critical Home Repair, Weatherization, and Anti-Displacement Program. We collected both primary and secondary data, and each data collection activity was approved by HSRI’s Institutional Review Board. Each data source provided salient contextual and programmatic information and, together, allowed us to understand the program and associated outcomes. Below, we describe our IRB submittal process, data sources, analytic approach, and study limitations.

Institutional Review Board

HSRI’s Institutional Review Board (IRB) reviewed and approved the overall project and each data collection activity. The IRB applications consisted of thorough explanations of each research activity, their purpose, the reasoning behind the methodology, and the measures taken to ensure the safety of participants. Securing IRB approval for each activity and protocol ensured that the rights and welfare of our participants were protected throughout each activity we pursued, and that the following components were clearly conveyed to each participant: informed consent, that participation is voluntary, and that minimal to no risk was involved.

Data Sources

IN-PERSON MEETINGS

Our research team met with NAYA program administrators three times over the course of the project to learn about the program’s history, its purpose, and its intricacies; to understand the evaluation intent and goals; and to receive clarification and provide updates on related topics.

EXISTING DATA SOURCES

We identified existing qualitative and quantitative data sources and received these from program staff following our initial meetings held with program administrators. Materials ranged from previous program evaluation reports, program tracking data and internal documents, and client-level data.

LITERATURE REVIEW

We conducted an in-depth literature review which included extant internal materials provided directly from program administrators, such as previous evaluation reports, as well as searches in scholarly databases, which furnished a broad range of local, state, and federal reports as well as peer-reviewed articles on health, housing, housing programs, and related topics.

SURVEYS

A nine-question survey was designed for program recipients to explore participants’ experiences and satisfaction with the program. Surveys were mailed out to 75 program recipients4 that received home repairs from 2014 through May of 2018. Mailings were

4 Two were returned to HSRI offices.
sent in the middle of August 2018, which included hardcopies of 1) a flyer for recipient participation, 2) an informed consent letter, 3) the survey, and 4) a stamped envelope for participants to return their completed survey. The mailings also included the project director’s phone number for those that preferred to complete the survey over the phone. To incentivize completion of the survey, a drawing was conducted with prizes including one $100 Visa gift card, two $50 Visa gift cards, and twenty $10 Fred Meyer gift cards.

In early September, reminder postcards were sent to survey recipients encouraging them to complete the survey if they had not already done so. In total, 30 paper surveys were completed and returned to the HSRI office, and two participants utilized the phone number provided to complete it over the phone. To yield greater participation rates, a research team member called survey recipients that had not completed the survey, and had willing participants complete the survey over the phone; out of the calls made, six additional surveys were completed. Across these methods, 38 surveys were completed in total (a 51% response rate).

QUALITATIVE INTERVIEWS & FOCUS GROUP

Twenty-six survey respondents indicated that they would be willing to participate in an in-person, in-depth interview. Of these people, seven were randomly selected and interviews were conducted in participants’ homes. Subsequently, a focus group was held at NAYA’s Elder’s Program, consisting primarily of elders who had received program services (one couple brought their adult son); in total, four households were represented. These interviews and focus groups were designed to gather more detailed information on participants’ experience of the program, and every individual who participated received a Visa gift card in appreciation for their time ($50 for one-on-one interviewees, and $35 for focus group participants).

Approach

Our research team used a mixed methods approach, gathering qualitative and quantitative data from a variety of sources to gain a comprehensive understanding of program processes and participant outcomes. Interviews with program administrators and prior program reports provided us with rich background information on implementation methods and program goals, and primary and secondary client-level data provided us with expansive data on the client-perspective, including short- and longer-term outcomes.

Qualitative data (i.e., survey and focus group data) were transcribed and entered into a qualitative analysis software, Dedoose, where themes were explored and categorized using content analysis and a grounded theory approach. Quantitative data (i.e. client-level survey data and program tracking information) were transferred to excel spreadsheets, which were then imported into the statistical software package SPSS for statistical analyses.

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5Our research team ultimately ended up mailing $10 Fred Meyer gift cards to all participants who did not win a larger prize.
Limitations
This report describes a small-scale study limited by both time and budget constraints. The study contract was executed near the end of one program year and the report was competed prior to the conclusion of the following program year, meaning that participants could not be tracked in real-time to gather participant information before, during, and after services had been received. Because of this, a retrospective study was used, where participants who had already gone through the program were asked to consider the conditions of their home and life prior to receiving services, and to recall how the program had impacted a range of life quality components. While retrospective studies are frequently used for low-cost, small-scale studies, they risk running into “recall bias”—a phenomenon where participants fail to remember previous situations accurately and where the accuracy of memories can be influenced by subsequent experiences or events.

Budget limitations also necessitated use of a convenience sample to gather information from program participants. Surveys were mailed to all homeowners who had received program services and for whom NAYA had easily accessible contact information (75 participants, or 61% of all program recipients). Ultimately only 30 of these surveys were completed and returned (an additional 8 surveys were completed over the phone), and of these 26 agreed to follow-up interviews. A randomization process was then used to select participants to interview, which typically increases the likelihood that results will be generalizable (that is, representative of the population of all homeowners who received program services); however, due to budget and time restraints, only 7 participants were ultimately selected for one-on-one, in-depth interviews (another 8 people representing four households participated in an open-invitation focus group of program recipients held at NAYA’s primary location). Ultimately, only 32% of the entire population (39 out of 122 households) were either surveyed, interviewed, or participated in the focus group; it is possible that if further interviews were conducted or a different group of homeowners had provided feedback, additional or different themes would have emerged.

The survey posed limitations as well. Because the program offered unique services based on household needs, not every question was applicable to every survey participant, and both the questions and the results may be interpreted differently depending on baseline conditions of participants’ households. For this study, a small budget necessitated the use of a short, easy survey that participants could complete quickly. However, future studies may benefit from longer surveys that gather more detailed baseline and follow-up information; having researchers conduct the surveys together with homeowners may also help to ensure that questions are understood similarly across program participants.

Despite these limitations, strong themes emerged from both interviews and survey results, and homeowners nearly unanimously indicated satisfaction with the program, citing a range of health, safety, and housing stability outcomes that resulted from the home repairs.