Final Evaluation Report

Right Care, Right Place, Right Time (R3):

Effectively Integrating Senior Care and Housing Initiative

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LeadingAge LTSS CENTER @UMass Boston

Research bridging policy and practice

I. Executive Summary

This report summarizes evaluation findings from the second phase of the Right Care, Right Place, Right Time (R3) Initiative -- called $R3^2$ (Jan 2019 - Sept 2020). The initiative is designed to integrate housing, health, and supportive care to residents of affordable senior housing using a wellness team (nurse and social worker). The embedded team works directly with residents to address health-related, educational, and informational needs and access to services - focusing on proactive outreach and prevention, coordination with providers, constant contact with residents, and targeting high-risk residents based on their health conditions, health utilization, and social needs such as food insecurity. The project was spearheaded by Hebrew SeniorLife, a Harvard-affiliated non-profit serving over 3,000 older adults in the Greater Boston area. The initiative aims to create a replicable, scalable, and sustainable model of housing with supportive services that enables independent living while reducing health care costs. Two wellness teams served approximately 400 participants at seven Boston-area buildings.

Evaluation activities included quantitative and qualitative components. Medicare claims and resident assessment data were analyzed using comparison groups. Program participants and non-participants at intervention and comparison sites were surveyed on program-related experiences. Focus groups were completed with payers, housing providers, and community stakeholders to provide insights about program sustainability and a workable financial model. Finally, key performance indicators were analyzed.

The evaluation provides strong evidence that the intervention reduces health care utilization, connects participants to needed supports, and improves residents' quality of life and ability to live independently. For example, results from the key performance indicators analysis indicate that on 4 of 5 five risk categories, the initiative engaged participants and addressed issues at a rate in excess of 90% (and at a rate of 75% for the 5^{th} risk domain). Viewed in the context of managed care plans, this level of performance is noteworthy, and would earn the program a 5 Star rating. The buildings-level analysis of Medicare claims data found a strong and positive impact on multiple service utilization parameters in intervention buildings compared to comparison sites: in intervention buildings, a 16% decline inpatient hospitalization rates, a 25% decline in hospital admission days per beneficiary, a 12% decline in average hospital days, a 22% decline in hospital admission payments per beneficiary, and a 22% decline in 30 day hospital readmission rates compared to a 6%, 29%, 14%, 33% and 60% increase in these respective rates among residents in comparison buildings. As well, when accounting for the older age of the $R3^2$ residents, the size of decline recorded in ED admission rates was 6.7% greater for the $R3^2$ sites than the decline in comparison sites. Program participants also had very positive views of the program: 87% would recommend it to a friend.

Qualitative results indicate widespread support for the R3 model, especially among community partners. Emergency responders found particular value in collaboration with housing sites and wellness teams, and housing providers were also enthusiastic, suggesting several mechanisms for sustainable funding. All agreed that a focus on outcomes, collaboration and information-sharing were key, and that the biggest challenge to sustainability is the lack of "critical mass" for any payer stakeholder, suggesting that only state- or federal-level solutions can address the collective action challenge that housing sites present.

These strong findings of R3's impact on resident health and well-being -- and on probable savings to the healthcare system -- indicate that this model warrants further investment and future development, and sustained efforts to achieve a long-term financing model. This will likely require government leadership, particularly in addressing the challenge represented by a lack of critical mass of residents for any single payer and assuring clustering opportunities for community providers. Moreover, continuing investment is needed in Section 202 housing and other mechanisms that incentivize developers and housing providers to build and sustain supportive housing models. This study uncovered strong support and economic justification for moving such programs forward to help individuals in senior housing age well in the community and to leverage the congregate platform to meet this goal.

II. Contents

III. Introduction and Background

a. Overview of awardee organization(s)

The mission of Hebrew SeniorLife (HSL) is to honor elders by respecting their independence, spiritual vigor, dignity, and choice, and by recognizing that they are a resource to be cherished. As part of its mission, HSL accepts special responsibility for the frailest and neediest community members. HSL serves a diverse population of over 3,000 seniors a day (averaging 87 years of age, over 90% of whom are supported by Medicaid or other subsidy) across a continuum of care and services: independent living, assisted living, person-centered geriatric care, long-term chronic care and rehabilitation, post-acute rehabilitative care, outpatient primary and specialty care, skilled nursing, hospice, and in-home care.

HSL offers a range of residential settings, which aim to integrate care and other supportive services to help seniors live their best lives. These include five senior living communities (three of which serve low-income seniors through HUD-subsidized housing) and two continuing care retirement communities. HSL also has the largest Gerontological research facility in the U.S. in a clinical setting, the Hinda and Arthur Marcus Institute for Aging Research, an affiliate of Harvard Medical School, with a portfolio of more than $63 million. HSL trains more than 1,000 students, interns, residents and fellows each year in multiple disciplines (medicine, nursing, physical therapy, social work, pharmacy, etc.), addressing the critical shortage of geriatric clinicians. In addition, HSL aims to strategically improve services to individuals with dementia and their families through initiatives such as its Deanna and Sidney Wolk Center for Memory Health. Finally, HSL operates the Center for the Prevention of Elder Abuse and Neglect, which is the first shelter of its kind in New England for victims of elder abuse.

b. Description of the problem or opportunity the program sought to address

Typically, affordable senior housing lacks mechanisms to effectively and proactively support the health of residents due to constraints in the model and funding. Most often there are not enough resources to monitor or proactively address changing health and support needs as people age, assess gaps in services, or connect older adults with social and medical services. Moreover, the healthcare system fails to leverage the congregate nature of senior housing, or the resources and information available that could significantly improve outcomes and reduce healthcare spending.

Although health plans could theoretically address this need, payment systems tend not to support site-based services. This is primarily due to issues of scale: typically, health plans lack a critical mass of members in any single senior housing setting, thus limiting a plan's incentive to dedicate energy and resources to any one location.

The Right Care Right Place, Right Time (R3) model addresses this gap by utilizing a wellness team to serve as the bridge between housing and the healthcare system. In contrast to current systems, where healthcare resources operate in silos without the benefit of a deep connection to and information about seniors' lives, this enhanced model integrates the two. The wellness team works within an interdisciplinary housing model and serves as the conduit to the payer/insurer's care management system, as well as a mechanism for connecting residents to the broader community resources that enable them to maintain their health and well-being. This creates efficiencies for payers and allows them to utilize limited care management resources more effectively.

R3 systemically addresses seniors' needs by delivering services to support high quality independent living, ensuring that seniors in affordable housing receive the right care, in the right place, at the right time. R3's outcomes-based approach is targeted to meet the specific needs of building residents, and leverages "on the ground" support systems inherent to senior housing. As a result, R3 endeavors not only to redesign the typical care model for this population—supporting improved health outcomes and quality of life for seniors—but also to redesign payment systems to decrease overall health care spending and reinvest a portion of the savings in sustaining the preventative model.

IV. Description of Intervention

a. Overview of the theory of change or hypotheses underlying the project, citing relevant literature

The R3 model's underlying theory of change is that offering a more highly coordinated response to the needs of seniors in supportive housing will result in fewer transfers from home to hospital and/or emergency rooms, as well as fewer premature long-term care placements. An important component of the model is working directly with seniors to address health-related, educational, and informational needs and access to services -- by providing interventions like nutrition education, balance and strength training to prevent falls, routine safety checks for at-risk residents, and additional coordination – resulting in fewer adverse events. These interventions, in turn, lead to fewer calls to emergency responders, emergency room visits, and subsequent hospitalizations. Focusing on prevention and outreach supports increased the use of preventive health care services and decreased use of acute care services, resulting in reduced healthcare costs and improved quality of life -- all of which supports the case to health plans for investment and long-term sustainability. The theory is grounded in the platform of supportive senior housing and aims to ensure that seniors have access and are connected to services supporting their health and social needs.

The R3[2] service model incorporated many key components from the first phase of R3, drawing on the lessons learned to more specifically address issues that impact emergency department trips and hospitalizations. In addition to drawing from the evidence HSL gathered during initial implementation of R3, the model built on the following evidence base:

- The State of Vermont's SASH (Support and Services at Home) model— a care coordination program anchored in affordable senior housing, which led to decreased hospital admissions, falls, and Medicare expenditure.[1]
- The CareOregon Housing with Services model, established to coordinate the delivery of services from health, aging, and social service providers, showing reductions in health care costs and emergency department utilization, and an increase in primary care utilization.[2]
- Evidence from the Center for Housing Plus Services at LeadingAge, which found that having a service coordinator on site can decrease seniors' odds of having a hospital stay.[3]
- The Brookings Institution report, "Housing as a Hub for Health, Community Services, and Upward Mobility", which recommended coordinating and improving housing models.[4]

- Research from Samus et al and others proposing engaging payers in a per-beneficiary/per month model to support those living with Alzheimer's disease and dementia.[5]
- Research showing a correlation between better food security for seniors in Massachusetts and lower incidence of food insecurity-related diseases and conditions.[6]

b. Overview of the care model

The R3 demonstration project had two phases, which spanned almost four years, 2017 - 2020. The second phase, R3[2], began in January 2019 and continued through September 2020 (the original 18 months of intervention plus an additional 3 months to allow continued service provision and data collection). Final assessments of residents at the intervention and comparison sites were completed between October and December of 2020.

The initiative served seniors, 62 years of age and older, living in seven affordable housing sites: HSL's Center Communities of Brookline (Cohen, Danesh, and Goldman Buildings) and Simon C. Fireman Community; Milton Residences for the Elderly (Unquity House and Winter Valley); and Winn Companies' The Village at Brookline. (See Appendix B for a full list of sites.) Resident demographics varied by housing site. Overall, 1,100 seniors lived in the participating buildings, with an average age of 87, approximately 78% of whom were women, 24% were people of color, and 16% of whom speak a language other than English as their first language. All residents over 62 at the intervention sites were eligible to participate, regardless of insurance coverage, medical conditions, income, or service utilization. HSL recruited and enrolled 400 of these residents to be active participants in the initiative.

Residents of affordable senior housing communities tend to have significant needs for support, including onsite nurse and physician services, transportation, and assistance navigating the health care system. There is often inappropriate use of emergency medical services (EMS) among seniors as they may prefer this over primary care because 911 calls will result in transport to care. Many express needs for help in managing medications and other medical challenges; many have experienced falls and struggle with food insecurity. Although most residents of affordable housing have low incomes, they may not qualify for Medicaid or other services, resulting in frail, at-risk seniors who try to live independently but have little ability to purchase services and supports and no ability to access state systems.

The target population's health-related social needs are further underscored by the following:

- A National Church Residences study (funded by the Kresge Foundation) found that 20% of skilled nursing residents could live in affordable housing with better funding mechanisms.[7]
- Hebrew Rehabilitation Center's 2013 Community Health Needs Assessment identified access to transportation, mental health services, and Alzheimer's care as key needs for community dwelling seniors in the Boston area.
- HSL's Wolk Center for Memory Health estimated that a minimum of 10% of the residents living at HSL's affordable housing sites experience some cognitive decline and would benefit from increased access to memory support services.
- HSL estimates that 30% of seniors living in our supportive housing sites would be in a long-term care setting without the supports they receive for health-related social needs.

To address these significant issues, the R3 model was refined in the second phase to implement targeted interventions to residents identified as high risk due to prior hospitalizations, emergency department trips, chronic medical conditions, falls, and difficulties with medication adherence, cognitive decline, mental health concerns and food insecurity. The primary changes were:

- Specific chronic diseases, such as Alzheimer's/cognitive decline, and hospitalization history were added as high-risk identifiers, along with medication non-adherence, falls, and mental health needs;
- Health-related social needs were added as high-risk identifiers targeted for intervention (food/nutrition, personal care assistance, social engagement, and transportation);
- Payment model was tested with a health plan.

Partnerships are a core component of the R3 model. Throughout the demonstration, a Partner Advisory Group met regularly for updates, brainstorming, and resource-sharing to ensure that program goals were being met and that progress was being made to advance toward identified aims of the initiative.

c. Overview of core staffing model, including funding sources for staff members

The R3 staffing model is a wellness team comprising a wellness coordinator (social worker) and wellness nurse (RN), who work together and with housing staff to provide resident supports. They engage residents in wellness programming and self-care management and provide transitions management, intensive care management, and active connection to services. They also ensure enhanced communications between housing staff and providers/plans. During the demonstration, staff positions were fully funded by grants and other philanthropic dollars. A key goal of R3, however, is proving out the model to develop a sustainable funding approach to support wellness teams at every affordable housing community in the country. Until that time, we will fund staff in several ways, including direct payments by housing operators.

d. Description of typical patient flow through care model

R3 participation begins with residents finding out about the program and being encouraged to enroll. Eligibility criteria are minimal: participants must only live in an intervention site and be aged 62 years or older. The enrollment process involves a comprehensive in-person assessment (approximately 1 hour) and completing consent forms. Engagement during the program includes one-on-one interactions with the resident -- primarily monthly check-in calls (more frequent if needed based on risk) – ad hoc connections in the residence and at wellness programs, and as needed by phone or in person. The services that each resident receives depend on individual circumstances, typically include:

- Assistance with coordination of healthcare services, connection to PCP and specialists, communication with care team.
- Supporting what matters most to each individual through understanding their goals and priorities.
- "Eyes on" from all staff members in the housing setting; team communication to support resident needs and/or changes.

- Connection to effective wellness and social programs such as brain health, "what happens when you call 911", chronic disease or health issue education, and medication clinics.
- Routine check-in calls with specific follow up questions regarding falls, medication adherence, changes in condition, and major events.
- Coordination and communication with the resident's entire team including the individual, family, physician(s), care manager from a health plan, aging services access point (ASAP), and other providers as needed.
- Transitions management and support when returning from a hospitalization or rehab stay.
- Support and advocacy with issues such as insurance coverage, service approvals, appointments, and equipment needs.

Services are provided in the resident's housing site and over the phone. Each wellness team serves 3-4 buildings, posting office hours and providing phone availability. Once a resident joins R3, they typically remain enrolled and continue receiving services unless they move out of the building or pass away.

e. Description of changes to the care model due to COVID-19

COVID-19 did not change the core components of HSLs care model. What did change was the need to do most work by phone, especially during the height of the crisis when many senior living communities were in lockdown. Rather than noting a change to the model, what was noted was how R3 enabled an effective and positive response to the challenges presented by the pandemic: specifically, that the teams already knew most residents, had established relationships with them, and knew family members who could be supportive and had ways to communicate with them. Thus, HSL could easily identify high risk residents who needed assistance during this crisis. The R3 team also helped other housing staff members with a process for managing calls to all residents and helped create a COVID-related call log. This ensured good communication, helping on-site and remote teams to work together effectively. Similarly, the process that R3 established to manage emergency department trips proved useful to HSL during COVID, as systems were already in place for obtaining information from first responder partners, thus ensuring speedy follow up for residents who might otherwise be alone in their apartments and in need of care.

f. Lessons Learned

- **Readiness to shift to a truly proactive approach:** The most significant process change HSL sought to implement across R3 housing sites is a shift from a more reactive and responsive model to a proactive and preventative approach in reaching out to residents. R3 initiated that shift through monthly calls and changes in programming focus, generating interesting conversations among staff about how much support should be provided in independent living. Our strong belief, supported by the data, is that this proactive, preventive focus reduces crises and acute care episodes, resulting in better quality of life for seniors and reductions in unnecessary costs. This changes the role of staff, allowing them to support more residents by connecting them with supports rather than focusing on only a few residents in crisis.

- **Developing trusting relationships**: Focusing on prevention also means that staff develop relationships when residents are healthy, building trust so that staff are the 'go-to resource'

when help is needed. Consequently, residents are more likely to call the team earlier rather than later, when a problem becomes acute and an emergency room trip is needed.

- **Partnerships:** A key to success in this model is excellent partnerships with first responders, health plans, local hospitals, local aging services providers and community service providers. All of these partnerships should be developed early on and maintained throughout, with a specific focus on two-way communication for referrals and ongoing support.

- **Outcomes and Documentation:** Establishing systems for documentation is critical at an early stage, especially in housing settings where this is not routine, beginning with notes on key information that residents share -- even if not health related -- in order to develop relationships and identify areas of support. Team members working to support residents will need an easy way to track actions that have already been taken so they can quickly and efficiently connect residents with needed services. Data can then be used to tailor programming to residents' specific needs and to report on the program's impact to payers.

- **Training:** Training staff in dementia care is important. The "eyes on" approach highlights the value of all staff members noticing and sharing changes in residents' status/condition. The training provides basic information about what to look for in the areas of cognition, mental health, abuse and neglect - and leads staff in all roles/departments in a discussion of why sharing what they see is crucial to preventing emergencies and supporting residents.

V. Evaluation Approach and Methods

a. Research questions and evaluation objectives

The research objectives for this study are to determine the extent to which the intervention affects program participants' use of selected health services; sense of well-being, satisfaction and quality of life; and connection with community providers. It also aims to identify the challenges and opportunities to program sustainability and growth. More specifically, primary research questions include:

1. Can the intervention lead to a reduction in transfers to hospitals and emergency rooms of 20%, as well as reductions in readmissions and lower utilization of emergency transports for seniors living in the housing sites participating in the program?
2. Can the intervention increase the utilization of mental health services, cognitive supportive services and nutrition and food support services for residents identified as being at risk in these areas?
3. Does participation in the program improve quality of life of participants and their ability to live independently and are they generally satisfied with the program?
4. What financial model(s) would be attractive to health provider partners like hospitals, health plans, and accountable care organizations that could support a sustainable model of the intervention?

b. Description of study design, including use of baseline data and/or control group data and statistical tests and analyses

The evaluation team deployed a mixed methods approach to evaluation, including both quantitative and qualitative approaches. A pre-post experimental design with a comparison group was used to analyze the program's effect on the core measures of emergency room visits, inpatient hospitalizations readmissions, and ambulance transfers. The comparison sample was developed in lieu of a pure control group, given the practical and financial difficulties of a randomized controlled trial. Comparison groups were drawn from housing sites not involved in the intervention. We also aimed to match sites on other building and resident characteristics, recognizing that these sites were not perfect matches for reasons such as their geographic location, the types of seniors attracted to the different sites, the community infrastructure available, and variations in culture across sites that may influence how services are used.

We assessed participants at the intervention and comparison group sites at baseline and follow-up for basic personal, health, and quality of life information. We also surveyed program participants for their views on the value of the program. In addition, program participants and non-participants at both intervention and comparison sites were surveyed to assess their connectedness to resources and ability to obtain help with health needs. Focus groups were also completed with payers, housing providers, and other community stakeholders who provided insights into ways to assure program sustainability through a workable financial model. Finally, information on key performance indicators were collected throughout the study.

Assessments

Baseline and follow-up data were collected using the Vitalize 360 instrument, a research-informed, comprehensive assessment tool. The assessment was completed on both participants in the intervention group and those in comparison sites.

Claims Data

Service utilization data for the intervention and comparison samples were evaluated before and after the program began operating. Healthcentric Advisors -- the local quality improvement organization (QIO) -- provided the team with aggregate building-level Medicare claims data (not $R3^2$ specific, as defined below). This data enabled us to compare building-level utilization statistics before and after $R3^2$ was launched for the intervention and comparison sites, serving as a primary source of hospitalization data and a secondary source for emergency department data; it was available 18 months prior to and after $R3^2$ program implementation (i.e. January 2019 through June 2020). The $R3^2$ intervention site buildings were evaluated against (1) the original five comparison buildings; (2) a comparison group comprising buildings that are known to have service coordinators, and; (3) a group of buildings known not to have service coordinators.

Our analysis of claims data focused on the difference-in-differences between pre- and post- $R3^2$ utilization trends in the intervention and comparison groups. That is, we evaluated the magnitude of any differences in utilization across sites and whether they changed over time. Statistically significant

utilization changes over time were attributed to the "R3^2 effect". Because data was only provided on an aggregate building-wide basis, we could only measure "R3^2 effects" among residents in an entire building, not among R3^2 participants only – a very conservative approach to the analysis. We then used standard statistical tests to determine whether any observed differences were statistically significant.

Ambulance Data

The emergency responder partners provided data on every emergency department trip for any resident living in an intervention site, which served as our primary source for the emergency department visit utilization measures. We compared pre- and post- utilization data for intervention sites using standard statistical analyses to determine whether any observed differences are statistically significant.

Key Performance Indicators (KPI)

To assess the success of the R3^2 strategy (along with other goals, such as routine project management), data management systems were established to track key performance indicators (KPI). These included the number of participants in the five risk domains, which were: 1) mental health (requiring access to specialized services and supports), (2) memory (requiring some level of ongoing supervision or care), (3) nutrition (requiring food counseling), (4) food insecurity (nutrition deficiencies requiring food supports), and (5) emergency department or inpatient hospitalizations (requiring a broad range of mitigation activities). Also tracked was the percentage of participants in the five risk domains whose needs were addressed by R3^2. We compare the program's performance on these key indicators to the few results found in the scientific literature and also to the Center for Medicare and Medicaid Services' (CMS) five (5) STAR rating system for managed care plan performance on comparable performance indicators.

Qualitative Data

Our qualitative work involved focus groups that provided insights about how the program can be scaled outside of the initial intervention sites. We examined whether sufficient interest and perceived benefit exists to enable the development of a financing approach to sustain the model outside of charitable foundation funding. Data from these interviews was transcribed and analyzed. A satisfaction survey was also administered to intervention group participants to obtain a more systematic evaluation of satisfaction with the overall program. As well, questions were added to the follow-up Vitalize 360 assessment administered to intervention and comparison groups to assess connectedness to resources and ability to obtain help with health needs. Non-program participants received a stand-alone survey.

c. Data collection and data sources

The data collection instruments include the following:

1. The Vitalize 360 instrument collects information on residents' socio-demographic and health characteristics as well as on quality of life measures. It is designed to enable us to control for differences among participants as we explore any changes over time in certain quality of life measures. This instrument was completed at the outset of the program as well as within three

months of program completion. (See **Appendix 1** for instruments). In total there were 325 baseline assessments and 79% completed a final assessment.

2. To measure satisfaction with the program, we distributed a short survey to participants during the second and third quarters of 2019, added a set of common questions to the final assessments, and distributed a survey to non-participants in calendar year 2020 at the R3[2] sites to compare the experiences of R3[2] participants with other residents in R3[2] buildings and with residents in comparison buildings. The final dataset comprised survey responses from 120 R3[2] participants, survey responses from 73 non-participants, and completed assessments from 243 R3[2] participants and 97 controls. (See **Appendix 2** for instrument)

3. Medicare utilization data included information for two 18-month periods: (a) Pre-Intervention: 7/1/2017 – 12/31/2018 (original R3 program period) and (b) Intervention: 1/1/2019 – 6/31/2020 (R3[2] program period). We also obtained data for three comparison groups: (1) Group 1: The original control buildings; (2) Group 2: Buildings known to have service coordinators, and; (3) Group 3: Buildings lacking service coordinators. The analytic sample included: R3[2] Intervention N= 618, Comparison 1 N= 323, Comparison 2 N= 1010, Comparison 3 N= 214.

4. Focus group protocols exploring the issue of program sustainability and potential financing models are provided in **Appendix 3**. In total, 22 individuals attended the focus groups: seven housing partners, seven payers, and eight Brookline community stakeholders.

5. Emergency responder partners provided data on emergency department (ED) trips for intervention sites, which served as our primary ED visit utilization measures. We compared data 18 months prior to program implementation and the 21 months of the full program implementation using standard statistical analysis. The data were analyzed at the buildings level– that is, average transfer rates per 100 residents in a given building.

d. Description of changes to the evaluation approach and/or data collection due to COVID-19

While we were initially concerned that we would not be able to obtain data from Healthcentric Advisors, we did receive the data. The pandemic resulted in delays in completing the patient assessment work; also, the focus groups were conducted virtually rather than in-person, requiring longer recruitment times. Thus, while we were able to complete all major components of the evaluation, we had to shift the timeline out by roughly four months.

VI. Findings

The appendices include separate detailed reports summarizing the methods and detailed results of the analyses we performed. Below, we present selected key findings for each evaluation component.

a. Descriptive statistics about patient population

Table 1 shows descriptive characteristics of both the intervention and control groups at baseline. Participants in the R3^2 program were, on average, 84 years old, and 80% were female. The sample was largely white (76%); about 18% were Black and less than 2% identified as Hispanic. Participants were highly educated -- nearly a quarter had a graduate degree. Most (56%) rated their health as good, with about 37% rating it as fair or poor; similarly, most rated their quality of life as good or excellent, with an average rating of 3 on a 0-4 scale. Physical health needs were limited, with the average number of comorbidities reported as 1. Similarly, few needed help with activities of daily living (ADL) -- the average number of functional limitations being 0.6 on a scale of 0-9. However, cognitive health seemed to be more of an issue, with an average need for help with instrumental activities of daily living (IADL) at 2.2 (on a scale of 0-8) and an average cognitive impairment score of 1.3 (on a scale of 0-8).

Compared to the comparison group at baseline, R3^2 participants were less likely to be White and more likely to be Black; educational levels were higher among R3^2 participants as well. R3^2 participants reported slightly lower quality of life and appeared to be somewhat more impaired than those in the comparison group, IADL needs of 2.2, compared to 1.4 and a mini-mental score of 1.4, compared to 0.8. They were also less likely to report a hospitalization in the last 30 day, with 18% of R3^2 participants reporting one, compared to 26% of control participants.

a. Process measure outcomes (see full report in **Appendix 4**)

To assess the success of the R3^2 strategy (along with other goals, such as routine project management), data management systems were established to track key performance indicators (KPI), including the number of participants in the five risk domains and the percentage of participants in the five risk domains whose needs were addressed by the R3^2 program. We know that at least 238 individuals needed mental health supports, 142 needed memory supports, 82 received regular check-ins due to concerns about emergency department and hospitalization risk, 102 needed nutrition counseling, and 50 needed food security supports. In total, among the population of R3^2 participants, the program identified 614 care gaps covering more than half of the total 400 participants. Many people were at risk in multiple categories.

Our analysis indicated that across four of the five risk categories—mental health, memory, nutrition counseling, and food supports -- the program engaged residents at a rate in excess of 90%. By "engaged" we mean staff connected with the individual and addressed their care gap either directly or by linking them with needed services and ensuring they actively participated. By contrast, the weighted engagement score for the fifth risk domain, regularly scheduled check-ins due to emergency department/ hospitalization risk, was 75% across the intervention sites. The success rates

Table 1: Descriptive Characteristics at Baseline of R3[2] and Comparison Group Participants

Characteristic	Treatment (n=325)	Control (n=158)
	Mean or %	Mean or %
Age	84.27	82.59
Female, %	80.00%	84.18%
Race, %		
Hispanic	1.26%	0.65%
American Indian or Alaskan Native	0.00%**	1.30%
Asian	3.47%**	0.00%
Black or African American	18.93%***	1.95%
White	76.34%***	96.10%
Marital Status [Single], %	38.99%	42.41%
Education, %		
Less than HS	8.70%	10.13%
HS Grad	21.74%***	37.97%
Tech or Trade School	5.90%	3.80%
Some College	25.16%	29.11%
Bachelors	15.84%	12.03%
Graduate Degree	22.67%***	6.96%
Self-Rated Health %		
Excellent	7.48%	12.66%
Good	55.76%	49.37%
Fair	34.27%	32.91%
Poor	2.18%	5.06%
Live Alone %	88.24%	86.71%
Quality of Life (0-4)	2.984**	3.197
Comorbidities (0-8)	1.02	1.04
SPMSQ (0-8) – cognitive screening tool	1.28	1.16
ADLs (0-9)	0.70	0.58
IADLs (0-8)	2.15***	1.35
Hospitalized last 30 days, %	18.15%*	26.39%
No Falls, %	81.37%	85.99%

Note: ** Differences are statistically different at the .05 level.
*** Differences are statistically different at the .001 level.

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across the five risk domains do not vary greatly across the program's two service areas, in Brookline and the South Shore.

Clearly, the R3[2] program has succeeded in engaging the vast majority (>90%) of individuals with specific risk factors and connecting them with needed services – thereby closing identified care gaps. Viewed in

the context of managed care plans, this level of performance is noteworthy, and would earn the program a 5 Star rating – the highest rating available. This finding underscores the strong advantage offered by having a wellness nurse and wellness coordinator embedded on site in senior housing and using this platform to manage prevention and care services to residents.

As part of their strategy for managing health care costs, Medicare Advantage (MA) plans invest significant resources in the identification (through assessment) and the closing (through care coordination) of care gaps. In fact, to help Medicare beneficiaries make choices about enrollment in either traditional Medicare or specific Medicare Advantage plans, CMS posts quality ratings that are related to a plan's ability to manage high-risk individuals. The idea is to help beneficiaries by providing them with information about the quality and effectiveness of plans offered in their area. Medicare Advantage plans are rated on a scale of one to five stars, with five stars representing the highest quality and one star representing the lowest quality. Plans that consistently perform poorly -- that is, those scoring less than three on a measure -- can be prohibited from enrolling Medicare beneficiaries.

These star ratings provide an objective basis of comparison for $R3^2$ performance in managing the risks it has identified as critical. One way to measure $R3^2$ performance is to compare it to managed care performance -- more specifically, to Medicare Advantage plans that specialize in care coordination. In Table 2, we show the specific measure used by CMS, the approximate measure for the $R3^2$ program, the CMS measure thresholds, and the $R3^2$ performance on that dimension. This table demonstrates that $R3^2$ performance across all of the roughly comparable metrics would be at a 5 Star level, indicating excellent performance.

b. Service utilization and outcome measures (See full report in **Appendix 5**)

The $R3^2$ program had a strong and positive impact on inpatient hospitalization rates compared to comparison sites. We found a:

- 16% decline in inpatient hospitalization rate among residents compared to 6% increase in comparison sites;
- 25% decline in total hospital admission days per beneficiary compared to 29% increase;
- 12% decline in the average number of hospital days compared to 14% increase;
- 22% decline in hospital admission payments per beneficiary compared to 33% increase; and
- 22% decline in 30-day hospital readmission rates compared to 60% increase.

While the $R3^2$ program's reduction in emergency department admission rates initially appeared to be smaller than that seen in comparison sites, the comparison did not account for the different age profiles of the populations. When the regression analysis was adjusted to reflect the overall older age of residents in the $R3^2$ buildings, we found a 6.7% greater rate of decrease in admission rates for the $R3^2$ sites compared to all comparison group sites. Further there was a 12% significant decline in emergency department admission payments per beneficiary among $R3^2$ sites compared to an insignificant 4% decline in comparison sites. The $R3^2$ program was also associated with a significant decline (23%) in the hospital observation visit rate per beneficiary and a slight net decline of (3%) in beneficiary visit payments for observation visits.

Table 2: Managed Care Plan and R3² performance measures and Star Thresholds

CMS Measure	STAR Measure Thresholds		R3² Measure	Performance
Improving or Maintaining Mental Health	< 72% ≥ 72% to < 78% ≥ 78% to < 82% ≥ 82% to < 84% ≥ 84%	1 Star 2 Stars 3 Stars 4 Stars 5 Stars	% engaged in mental health supports	95% **5 Stars**
Managing Chronic (Long Term) Conditions	< 47% ≥ 45% to < 58% ≥ 58% to < 75% ≥ 75% to < 88% ≥ 88%	1 Star 2 Stars 3 Stars 4 Stars 5 Stars	% engaged in memory support	93% **5 Stars**
Care Coordination	< 82% ≥ 82% to < 84% ≥ 84% to < 86% ≥ 86% to < 87% ≥ 87%	1 Star 2 Stars 3 Stars 4 Stars 5 Stars	% connected to nutrition counseling or food security supports	93% to 95% **5 Stars**
Monitoring Physical Activity	< 43% ≥ 43% to < 49% ≥ 49% to < 53% ≥ 53% to < 60% ≥ 60%	1 Star 2 Stars 3 Stars 4 Stars 5 Stars	% who received check-ins	75% **5 Stars**
Functional Status Assessment	< 55% ≥ 55% to < 71% ≥ 71% to < 85% ≥ 85% to < 93% ≥ 93%	1 Star 2 Stars 3 Stars 4 Stars 5 Stars	Completion of Vitalize360 Assessment	>95% **5 Stars**

Using data from EMS partners on ambulance transfers to emergency departments, we found that these held steady when comparing the R3² time period to the time period covered by the initial R3 intervention. Table 3 shows no statistical difference in the average number of transfers per 100 residents (with an average of 3.8 transfers per 100 residents) after the R3² program enhancements were introduced when compared to the rate of transfers during the R3 time period. Thus, while ambulance transfers declined significantly following the introduction of the R3 program (with 18.2% fewer transfers), utilization leveled off and stayed constant following the introduction of R3² enhancements.

This demonstrates a pattern typical of a dose-response relationship: the impact of the intervention wears off and the marginal adjustments associated with R3[2] were successful in keeping rates of ambulance transfers low.

Data from EMS partners was also used to understand the rate of 30-day readmission following a transfer to emergency departments. Over the R3[2] time period, 15% of R3[2] participants who were transferred to emergency departments were re-admitted to an emergency department within 30 days, which compares favorably to average rates of 20% or more found in the literature for similar populations.[8]

Table 3: Changes in Ambulance Transfers per 100 Residents, Over Time

	Transfers per 100 Residents			**Statistical Significance**	
	Pre-Intervention	R3	R3[2]	Pre-Intervention compared to R3	R3 compared to R3[2]
Time Period	Jan 16 - March 17	Jul 17 - Dec 18	Jan 19- Sept 20		
Average, All Sites	5.2	3.7	3.8	0.0217**	0.6615

Note: ** Differences are statistically different at the .05 level.

Using data from baseline and final assessments, we analyzed any differences over time in self-reported outcome metrics including: functional status (ADLs and IADLs), cognitive function (SPMSQ), hospitalizations reported in the last 30 days, falls reported in the last 30 days, and quality of life as measured by the World Health Organization Quality of Life Index.[9] Assessment attrition was relatively high over the three-year period. Retention was 60% over the full period (434 residents were assessed at baseline, 325 at the end of the R3 period, and 258 at the study's conclusion) but only 47% among the comparison group (216 at baseline, 158 at the end of R3, and 102 at the end of R3[2]). Notably, drop-out in the intervention group declined from 25% during R3 (over a period of 18 months), compared to 20% over the 21 months of R3[2]. Given these high rates, comparisons between groups are not likely to be valid, especially given significant differences in key parameters at baseline. Even so, we tracked changes over time **between** the groups and exclusively **among** program participants on these self-reported outcomes. Bivariate and multivariate analyses found that, among those who remained enrolled, there were no statistically significant differences in the self-reported key outcome variables. We believe that the bias that likely resulted from the high drop-off rate, along with the relatively small sample size would make it difficult to detect statistically significant differences within and between the groups, if they existed. Thus, even though the evidence from this self-reported data does not support a conclusion of positive impacts on these parameters, results of this analysis should be viewed as inconclusive at best.

c. Program participant experience outcomes (full report in **Appendix 6**)

As mentioned, we distributed a short survey to participants and added a set of common questions to the final assessments that were designed to measure and compare participant experience and

satisfaction. Here we report on the survey results. In the more detailed report, we provide context and findings for several common questions asked among participants and non-participants at the R3^2 sites and residents in comparison buildings.

Most respondents are over age 75 years (70%) and no longer married (85%), because they never married (19%) or were widowed or divorced (66%). While roughly a quarter are limited in at least one ADL, a slight majority (52%) have at least one IADL limitation. Finally, slightly less than one third rate their health care as fair or poor.

Our analysis showed that a high percentage of individuals perceive benefits from R3^2. Nine-in-ten respondents' trust that R3^2 staff will protect their privacy and virtually all respondents (97%) know how to reach R3^2 staff should they need them; most (85%) feel that R3^2 is a good source of information and support. Moreover, roughly two-in-three feel that the program has helped them to be healthier and feel less lonely; very few individuals (<5%) disagree with these two statements. Participants were also asked whether they are satisfied with the program and whether they would recommend it to a friend – two important measures of program attractiveness and quality as well as commitment to the program. High proportions of respondents said that they are satisfied with the program (83%) and that they would recommend it to a friend (87%). Very few respondents are unsatisfied or do not feel that the program is worthy of recommending to a friend (just 3% and 2%, respectively).

We asked respondents to provide more specificity regarding what they believe the program is doing for them. Response options ran the continuum from obtaining more knowledge and education, to engaging in more self-care activities, to reducing the need for unnecessary emergency room visits. We found that well over half of respondents reported that they feel safer knowing that someone is available to answer their questions (84%), are able to learn about resources in the community (69%), feel safer knowing someone is looking out for them and providing support when needed (57%) and appreciate that there is help to obtain services when needed (50%).

We conducted multivariate analyses to determine whether socio-demographic characteristics are associated with people who indicated that they were very satisfied with the program as well as those who indicated that they would strongly recommend the program to a friend. We found that being over age 85 and being female are associated with a greater likelihood of being very satisfied. In fact, individuals age 85 and over are 4.2 times more likely to be very satisfied with the program than are those under age 85. As well, females are 2.7 times more likely to be very satisfied with the program than are males. Self-rated health status, marital status, and the number of IADL limitations are not related to high satisfaction. While we desired to test whether the number of contacts one has is related to being very satisfied, too few individuals responded to this item to be able to analyze this relationship. We also find that the only variable that influences whether or not someone would strongly recommend the program to a friend is being over age 85: people age 85 and over are 3.2 times more likely to strongly recommend the program to a friend than are younger individuals.

d. Program specific analysis: Scalability and financing model (See **Appendix 7** for full report)

As mentioned, we conducted three focus groups with housing providers, payers, and community stakeholders in Brookline. We describe key findings from this qualitative research below.

Housing Partners

Facilitators: Housing partners described a range of factors that contributed to the successful implementation of housing with services, including enhancing staff communication, relationships, and training; forming effective community partnerships; and implementing resident-centered care by getting to know residents and assessing their needs and preferences to better develop individualized plans.

Barriers: Redundancies, inconsistencies, and inefficiencies in care as a result of multiple service providers coming and going from buildings were noted as major challenges. Another significant challenge pertained to the tradeoff between consolidating services within a housing community and the practical and legal imperatives to maintain residents' freedom of choice of providers under Medicare. The provision of too many services in-house to an increasingly frail resident population raised questions about the need for greater regulation if housing communities become too much like assisted living. Funding was identified as the most significant obstacle to achieving sustainability in housing with services, particularly with respect to smaller, less well-resourced residential communities; HUD historically not looking to fund many services; and limited options for funding services for residents not dually eligible for Medicare and Medicaid .

Solutions: Housing partners suggested several solutions for building a sustainable and replicable model of housing with services. Strategies included co-locating on-site medical and social service professionals within affordable senior housing communities, generating empirical data to prove out housing with services to potential funders, and tailoring housing programs to meet the needs of a frail and low-to-moderate income older adult population. Strategies also included cultivating a range of potential funding sources, such as justifying higher rents and more generous loans by accounting for the value added by the resident services package. They suggested incorporating the costs of resident services coordinators, programs, and services into the state LIHTC program and modifying the state tax credit and soft-debt programs to better support housing with services. The need to implement supplemental funding programs for non-state public housing communities was noted. Also discussed was the need for greater collaboration between housing and health and human services agencies, both at the state level (i.e., the Department of Housing and Community Development and Executive Office of Health and Human Services) and federal level (i.e., HUD and the CMS).

Payers

Facilitators: Payers described facilitators to achieving sustainability in housing with services. Several emphasized that the will to integrate health into housing is growing, as payers in health care are increasingly accepting that the two are intrinsically linked. Additionally, payers discussed the importance of achieving a "critical mass" of residents within the same health plans and clustering providers within communities in order to secure plan investment and efficiencies in housing with services, and how this

may be easier to achieve for Medicaid-only and Medicaid-Medicare dually eligible beneficiaries. They also believed that some residents want services, thereby influencing their choice of housing communities and leading them to voluntarily switch health plans/providers to receive them once they had witnessed the benefits to participation. Finally, payers noted that fears about violating the Health Insurance Portability and Accountability Act (HIPAA) provisions concerning the sharing of medical information among stakeholders may not be as significant as sometimes indicated.

Barriers: Payers elaborated on multiple barriers to sustaining a housing with services model that remain salient to financial stakeholders. They pointed out that establishing enough "critical mass" of residents at a single housing site could be difficult to achieve and harder to establish in existing buildings than in new buildings. They observed that inefficiencies in current payment and contracting systems create challenges to gaining traction for a new model of service delivery. These include payer financial concerns due to redundancies in care management services, as well as incentives that discourage creative thinking. They also expressed concerns about uptake of embedded services among housing site residents due to fairness in the distribution of services across housing settings, practical and legal concerns to maintain residents' freedom of choice of providers under Medicare, residents' existing relationships with healthcare providers, and privacy challenges.

Solutions: Payers reinforced that generating empirical data is important to prove out housing with services and gain buy in from insurers; however, feasibility and simplicity in administration are also key. They also identified a range of approaches to achieving long-term funding, as well as the impact that the COVID-19 pandemic had in relaxing prevailing rules and regulations to promote more effective and efficient communication and collaboration. Potential long-term funding approaches identified included establishing conditions favorable to health plan investment (e.g., CMS creating care management billing codes for housing); pooling funding at the federal or state levels; seeking Medicaid funding via waivers or demonstrations; advocating for greater state leadership and innovation; funding through home-based medical practices; and titrating investments based on prevailing service deficits.

Brookline Community Stakeholders

Facilitators: Brookline community stakeholders cited several facilitators to sustaining and/or replicating the R3 model. Stakeholders noted that the will to find a way to fund housing with services is growing. They also note that R3's model of housing with services is already "built out" with demonstrated success on key outcomes, making it more trustable and less daunting for housing providers to adopt and for payers to support. As a result, they encouraged dissemination of its lessons to other residential communities. They reported that emergency responders are eager partners in this endeavor, sharing data, seeking to reduce and prevent unnecessary 911 calls and ambulance runs, and recognizing consistency between housing with services and mobile integrated health.

Barriers: According to Brookline community stakeholders, a variety of barriers to the uptake of a housing with services model remain. Many of these are rooted in a general "fear of the unknown" and lead to hesitancy on the part of housing sites to adopt a novel model like R3 that may impart additional costs to the operating budget over the long term. Finding sustainable funding thus remains the largest single barrier to housing with services; fears about lost revenue lead to reticence to accept a share of the

financial responsibility in a tight fiscal environment despite potential benefits and excitement about R3. Participants pointed out that a lack of critical mass of residents covered by any one insurer/health plan makes it financially risky for insurers to fund a housing with services program. Because residents can switch insurance providers at any time; the benefits of investing in the model may accrue to other plans. They observed that requirements and options for R3 funding sources may differ across housing settings, such as in senior housing versus family housing or in housing authority properties versus privately-owned properties.

Solutions: Community stakeholders reinforced the importance of data in demonstrating the efficacy of housing with services and gaining buy-in across potential funding entities, from legislators to hospitals to developers. They also identified lessons drawn from the COVID-19 pandemic with respect to flexibilities that enhanced provider collaboration and roles. Several ideas for funding housing with services were proposed: focusing on financial "pain points" to gain buy-in from potential financial partners, in addition to bringing services into new housing developments and advocating for greater state and federal government leadership and innovation (e.g., investor requirements to embed services; insurance requirements to reimburse services that help seniors stay in their homes). They also suggested advocating for a greater role for Medicare as the primary insurer of older Americans, looking into public health grants and funds, and partnering with mobile integrated health. Other potential funding strategies were related to creating public-private partnerships; reducing liability insurance payments; and instituting a fee-based funding model paid either by residents and family or, if turnover rates declined, by housing providers.

VII. Limitations

The primary limitations of the evaluation research included (1) the inability to develop a more accurate comparison group; (2) the relatively high assessment drop-off rate in both participant and comparison group members between the baseline and final assessment, which limited our ability to detect statistically significant differences in certain outcome metrics (if they existed); (3) the fact that we were only able to obtain aggregated Medicare claims data rather than individually linked data, and; (4) the inability to capture all potential impacts since many of them – reductions in fall risk, use of nursing home care -- only accrue over the longer term, in part because they are relatively low-incidence events.

VIII. Conclusions

a. Discussion

An underlying premise of the R3 model is that having staff "embedded on the ground" in senior housing enables trusting relationships to develop, leading to the efficient and proactive delivery of health and supportive services to residents. Our multi-faceted evaluation, which drew upon both quantitative and qualitative research methodologies to assess program performance, bore this out. In particular, the focus on proactive outreach and prevention (with special attention to high-risk individuals), coordination with providers, and eyes on residents all combined to lead to the positive results of the program. The

evaluation provides strong evidence that the intervention reduces health care utilization, connects participants to needed supports and improves residents' quality of life and ability to live independently. Not surprisingly, participants reported high satisfaction with the program.

This R3 approach of dealing with both the social and medical aspects of care is consistent with recent efforts to address social determinants of health. Moreover, evidence from this study supports those who are encouraging initiatives designed to establish cluster care models, where high concentrations of older adults reside. Yet, it is important to point out that building the trust and fostering the relationships necessary for the model to succeed take time and require a willingness on the part of partners to engage and invest in defining organizational linkages, agreeing on referral processes, and fostering open communication. Some providers may be more willing to do this than are others, especially when it comes to information-sharing across entities. Knowing this through initial due diligence is critical to assuring that the right partners are in place to maximize program success.

This research adds to the growing knowledge base demonstrating that housing with services models like R3 can and do reduce health care utilization, thus generating savings to payers. The empirical data provides a basis for the health plan and payer community to evaluate the costs of investing in such programs, with a better understanding of the benefits that are likely to ensue. This is true even though not all potential benefits have been adequately accounted for, such as impacts on nursing home use, changes in perceived quality of life, and the long-term benefits associated with improved nutrition, greater socialization, and risk reduction. As the provider community examines how to improve the service infrastructure in a post-COVID world, programs such as R3 represent an approach that meets multiple objectives, not the least of which is maximizing the safety of residents.

b. Overview of program sustainability after HPC funding ends

With rare exceptions, it is not realistic to expect payers to take the initiative and finance service coordinators in buildings where they do not have a critical mass of members. While payers may be willing to support and collaborate in such a model, they are unlikely to take the lead, even as housing providers express strong support for such models. The need for clear lines of accountability and agreed-upon performance metrics have to be addressed for payers to entertain allocating financial resources to such an effort. That said, HSL has already negotiated a financial arrangement with two large health plans that are paying per member per year (PMPY) fees to support a portion of the staff costs of the program. This payment represents a pro-rata share of costs based on the number of each plan's members who are benefitting from services. The sell to housing providers seems to be less difficult because benefits are clear to them, including lower turn-over, marketing opportunities, and highly satisfied residents.

Stakeholders representing housing providers, payers, and others agreed that funding was the key obstacle to achieving program sustainability over the long run. While a range of potential funding sources were suggested, the need for greater coordination between housing and health and human services agencies, as well as housing authorities -- at both the state level and federal levels -- was emphasized. Put simply, leadership from government is crucial to assure ongoing sustainability, particularly as it relates to addressing the challenge represented by a lack of critical mass of residents for any single payer and assuring that there can be clustering opportunities for providers in the community. One example would be the possible bundling of Medicare and Medicaid payments to cover 100% of

seniors living in affordable housing, which could support affordable housing communities to provide wellness teams. Without question, all of the stakeholders agreed that the necessary elements for success will be easier to achieve given the leverage and incentives available to government, whether with respect to Medicaid or Medicare beneficiaries or to beneficiaries dually eligible for both programs.

c. Recommended areas for future research and investment

Future research should continue to build on the evidence base presented here, particularly with respect to the ability of programs such as R3 to be implemented in other contexts, including more diverse populations, rural settings, and alternative housing models. A focus on research that captures program benefits that accrue over the longer term is also warranted, in part to support the business modeling needed to justify investment decisions. To the extent that alternative funding models do emerge, each will need to be evaluated so that replication is possible on more than an ad hoc basis. Establishing learning consortiums -- so that lessons learned can be shared across providers and states – will be critical, and can inform national strategies.

It is clear that continuing investment is needed in Section 202 housing and other mechanisms that incentivize developers and housing providers to develop and sustain supportive housing models. How best to do this is still an open question, but researching and documenting the impact and best practices of such mechanisms is particularly important. Efforts should also be devoted to establishing federal and state demonstrations for achieving a stable and sustainable funding model. This will, first, require linking the pertinent housing, health, and human services agencies both at the state level (i.e., the Department of Housing and Community Development and Executive Office of Health and Human Services) and federal level (i.e., HUD and the Centers for Medicare and Medicaid Services). It will, second, require developing and implementing demonstration programs that pool the funds necessary to finance housing with services for all Medicaid and/or Medicare residents living within given housing communities (with the state being responsible for the former and the federal government the latter). Finally, it will require continued investments in knowledge generation through well-designed evaluations.

Appendix A: Summary Table for R3[2] Results

A. Service Utilization Measures	Program Effect	Method	Data Source
Change in inpatient hospitalization rate	**-16%**	Pre-Post difference in intervention group; significantly greater than difference in comparison group	Healthcentric Advisors; aggregate Medicare claims; 36 months
Change in total hospital admission days per beneficiary	**-25%**	Pre-Post difference in intervention group; significantly greater than difference in comparison group	Healthcentric Advisors; aggregate Medicare claims; 36 months
Change in average number of hospital days	**-12%**	Pre-Post difference in intervention group; significantly greater than difference in comparison group	Healthcentric Advisors; aggregate Medicare claims; 36 months
Change in hospital admission payments per beneficiary	**-22%**	Pre-Post difference in intervention group; significantly greater than difference in comparison group	Healthcentric Advisors; aggregate Medicare claims; 36 months
Change in 30 day hospital readmission rates	**-22%**	Pre-Post difference in intervention group; significantly greater than difference in comparison group	Healthcentric Advisors; aggregate Medicare claims; 36 months
Change in emergency department admission rates	**-7%**	Pre-Post difference-in-difference for intervention and comparison group controlling for age	Healthcentric Advisors; aggregate Medicare claims; 36 months
Change in emergency department admission payments per beneficiary	**-12%**	Pre-Post difference in intervention group; significantly greater than difference in comparison group	Healthcentric Advisors; aggregate Medicare claims; 36 months
Change in hospital observation visit rate per beneficiary	**-23%**	Pre-Post difference in intervention group; significantly greater than difference in comparison group	Healthcentric Advisors; aggregate Medicare claims; 36 months

Appendix A: Summary Table for R3² Results – continued

B. Key Performance Indicators	Program Effect	Method	Data Source
Change in beneficiary visit payments for observation visits	**-3%**	Pre-Post difference in intervention group; significantly greater than difference in comparison group	Healthcentric Advisors; aggregate Medicare claims; 36 months
Change in ambulance utilization	**0%**	Pre-Post difference	Data provided by emergency transport companies; 33 months
Percentage of high risk individuals engaged:			
Mental health supports	**95% (5 star rating)[a]**	Number of individuals engaged/ receive service divided by number classified as needing service	Weekly productivity reports provided by R3² staff
Memory support	**95% (5 star rating)**	Number of individuals engaged/ receive service divided by number classified as needing service	Weekly productivity reports provided by R3² staff
Connected to nutrition counseling or food security supports	**93% - 95% (5 star rating)**	Number of individuals engaged/ receive service divided by number classified as needing service	Weekly productivity reports provided by R3² staff
Received check-ins	**75% (5 star rating)**	Number of individuals engaged/ receive service divided by number classified as needing service	Weekly productivity reports provided by R3² staff
Completed Functional status assessment	**>95% (5 star rating)**	Number of individuals engaged/ receive service divided by number classified as needing service	Weekly productivity reports provided by R3² staff; Vitalize 360 Assessment

[a] How Medicare Advantage Plans are rated by CMS for hitting particular performance thresholds – 1 Star (poor performance) to 5 Stars (Excellent performance).

Appendix A: Summary Table for R3² Results – continued

C. Program Participant Experience Outcomes	Program Effect	Method	Data Source
I know how to contact R3² staff when I need them	97%	Percentage of respondents agreeing with statement	Participant Survey
I trust the R3² staff with my personal information	91%	Percentage of respondents agreeing with statement	Participant Survey
The R3² program is a good source of information and support	85%	Percentage of respondents agreeing with statement	Participant Survey
The R3² program makes me feel less alone	68%	Percentage of respondents agreeing with statement	Participant Survey
The R3² program helped me be healthier.	65%	Percentage of respondents agreeing with statement	Participant Survey
I would recommend the R3 Program to a friend Strongly Agree Agree	87% 51% 36%	Percentage of respondents agreeing with statement	Participant Survey
I am satisfied with the R3 Program Strongly Agree Agree	83% 48% 35%	Percentage of respondents agreeing with statement	Participant Survey
Confidence in managing/ controlling health problems Very Confident Somewhat Confident	97% 60% 37%	Percentage of respondents agreeing with statement	Participant Survey
WHO Quality of Life (QOL) Measure	0%	We were unable to detect a statistically significant change in the QOL measure over time	Vitalize 360 Assessment

Appendix A: Summary Table for R3[2] Results -- continued

D. Key Informant and Focus Group Results, Financing and Sustainability	Key Observation
Housing Providers-Facilitators	• Implementation of housing with services is enhanced by staff communication, relationships, and training • Forming effective community partnerships is important for success • Implementing resident-centered care by getting to know residents and assessing their needs and preferences helps housing with services to better develop individualized plans
Housing Providers-Barriers	• Managing multiple service providers coming and going from buildings leads to redundancies, inconsistencies, and inefficiencies in care • Consolidating services can improve efficiency but raises concerns over limiting residents' choice of providers, both practically and as a legal requirement under Medicare • The provision of too many services in-house to an increasingly frail resident population raises questions about the need for greater regulation • Funding is the largest obstacle to sustainability, particularly with respect to smaller, less well-resourced residential communities; HUD resistance to funding services; and limited options for funding services for non-Medicare-Medicaid dually eligible residents
Housing Providers-Solutions	• Consolidating health and social services providers on-site to a limited number of staff would increase quality, reduce inefficiencies, and improve workforce stability • Generating empirical data is needed to prove out housing with services programs • Tailoring programs to older adults' increasing frailty and decreasing income is important • Potential alternative funding sources include: a) seeking higher rents and more generous loans due to the value added, b) incorporating the costs of resident services coordinators, programs, and services into the state LIHTC program, c) modifying state tax credit and soft debt programs to better support housing with services, d) providing supplemental funding for non-state public housing communities, and e) promoting greater collaboration between housing and health and human service agencies at both the state and federal levels

Appendix A: Summary Table for R3[2] Results -- continued

D. Key Informant and Focus Group Results, Financing and Sustainability	Key Observation
Payers-Facilitators	• The will to find a way to fund housing with services is growing • Establishing a critical mass of residents with the same health plans and clustering providers within communities could secure plan investment and efficiencies • Critical mass may be easier to achieve for Medicaid and dually eligible beneficiaries • Some residents' desire for services may influence their choice of housing communities and/or lead them to voluntarily switch health plans/providers to receive them • Finding ways around HIPAA limitations may be easier than people think
Payers-Barriers	• Reaching a critical mass of residents could be difficult to achieve and harder to establish in existing buildings compared to new buildings/construction recruiting residents • Inefficiencies exist in current payment and contracting systems, including payer financial concerns due to redundancies in care management services, as well incentives that discourage creative thinking • Concerns remain over resident uptake into a housing with services model due to fairness in the distribution of services across housing settings, as well as practical and legal concerns over maintaining residents' freedom of choice of providers under Medicare
Payers-Solutions	• Generating empirical data is important to prove out housing with services and gain buy-in, though data alone isn't enough; feasibility and simplicity are also key • Relaxed rigid rules and regulations as per COVID-19 experience led to more effective and efficient communication and collaboration; same could be applied to housing with services • Potential long-term funding approaches include: a) establishing conditions favorable to health plan investment (e.g., CMS creating care management codes for housing), b) pooling funding at the federal or state levels, c) seeking Medicaid funding via waivers or demonstrations, d) advocating for greater state leadership and innovation, e) funding through home-based medical practices, and f) titrating investments based on prevailing service deficits

Appendix A: Summary Table for R3[2] Results -- continued

D. Key Informant and Focus Group Results, Financing and Sustainability	Key Observation
Brookline Community Stakeholders-Facilitators	• The will to find a way to fund housing with services is growing • R3 can tout the fact that its model is already 'built out' with demonstrated success on key outcomes to encourage dissemination of its model and lessons learned • First responders are eager partners that express a willingness to share data, reduce unnecessary 911 calls and ambulance runs, and recognize consistency between housing with services and mobile integrated health
Brookline Community Stakeholders -Barriers	• Finding sustainable funding remains the largest barrier to housing with services; fears about lost revenue lead to reticence to accept a share of the financial responsibility in a tight fiscal environment despite potential benefits and excitement about R3 • A lack of critical mass of residents covered by any one insurer/health plan makes it financially risky for insurers to fund a housing with services program, particularly because residents are free to switch insurance providers at any time and the benefits of paying for services may accrue to other plans • Requirements and options for funding sources may differ across housing settings, e.g., senior versus family housing or in housing authority versus privately-owned properties
Brookline Community Stakeholders-Solutions	• Data is important to demonstrate the efficacy of housing with services and gain buy-in across potential funding entities, from legislators to hospitals to developers • New flexibilities in provider collaboration and roles during COVID-19 can be applied going forward in the context of housing with services • Proposed ideas for funding housing with services include: a) focusing on financial "pain points" to gain buy-in from potential financial partners, b) bringing services into new housing developments, c) advocating for greater state and federal government leadership and innovation (e.g., investor requirements to embed services, insurance requirement to reimburse services that help seniors stay in their homes), d) establishing a greater role for Medicare as the primary insurer of older Americans, e) looking into public health grants and funds, and f) partnering with mobile integrated health providers

Appendix B: List of Intervention and Comparison Sites for R3[2]

Building		Owner	Town	Region
Intervention Sites				
	Julian and Carol Feinberg Cohen Residences	Hebrew SeniorLife	Brookline	Brookline
	Marilyn and André Danesh Family Residences	Hebrew SeniorLife	Brookline	Brookline
	Simon C. Fireman Community	Hebrew SeniorLife	Randolph	South Shore
	Diane and Mark Goldman Family Residences	Hebrew SeniorLife	Brookline	Brookline
	Unquity House	Milton Residences for the Elderly	Milton	South Shore
	Village at Brookline	WinnCompanies	Brookline	Brookline
	Winter Valley	Milton Residences for the Elderly	Milton	South Shore
Comparison Sites				
	Framingham Green	Peabody Properties	Framingham	Metro West
	Jack Satter House	Hebrew SeniorLife	Revere	North Shore
	The Moorings	Peabody Properties	Quincy	South Shore
	Seabury Heights	Retirement Housing Foundation	Worcester	Central
	Wollaston Manor	Housing Management Resources	Quincy	South Shore

Appendix C: Right Care, Right Place, Right Time (R3)
Sources of Funding

Beacon Communities, LLC
Boston Scientific Foundation
Coverys Community Healthcare Foundation
Enterprise Community Partners
The Commonwealth of Massachusetts Health Policy Commission (HPC)
Hebrew SeniorLife
Massachusetts Department of Housing and Community Development
MassHousing
Milton Residences for the Elderly
Pioneer Institute
WinnCompanies

Appendix D: Right Care, Right Place, Right Time (R3) Partner Organizations

Organization	Type	Region
Brookline Fire Department	Emergency Response	Brookline
Brookline Police Department	Emergency Response	Brookline
Center Communities of Brookline	Housing	Brookline
Commonwealth Care Alliance	Health Plan	Both
Fallon Ambulance	Emergency Response	Both
Health Policy Commission	Funder & Guide	Both
Hebrew SeniorLife (Home Care, Therapy House Calls, Personal Care Assistance Program, Center for Memory Health)	Healthcare Provider	Both
L. Simon Solutions LLC	Consultant	Both
LTSS Center @ UMass Boston	Researcher	Both
Milton Residences for the Elderly	Housing	South Shore
Randolph Fire Department	Emergency Response	South Shore
Simon C. Fireman Community	Housing	South Shore
South Shore Elder Services	ASAP	South Shore
Springwell	ASAP	Brookline
The Brookline Center for Community Mental Health	Mental Health	Brookline
Tufts Health Plan	Health Plan	Both
WinnCompanies – The Village at Brookline	Housing	Brookline

Note: ASAP = Aging Services Access Point

Links to Appendices

Appendix 1: Vitalize 360 Lifestyle Survey Health and Social Check-up Plus

Appendix%201%20Vi
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Appendix 2: Resident Satisfaction Survey

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Appendix 3:Focus Group Key Informant Interviews

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Appendix 4: Summary of R3^2 Program Results on Key Performance Indicators

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Appendix 5: Analysis of R3^2 Medicare Fee-For-Service Data

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Appendix 6: Analysis of Satisfaction Survey results for the R3^2 Program

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Appendix 7: Analysis of Focus Groups on the Sustainability of the R3 Model

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