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Optimizing the Assisted Living Experience: Integration of Value-Based Care to Foster Augmented Resident-Centered Quality

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Optimizing the Assisted Living Experience: Integration of Value-Based Care to Foster Augmented Resident-Centered Quality

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Authors Message

In presenting this quality improvement project, I aim to contribute to advancing knowledge surrounding the effects of Value-Based Care models within Memory Care settings. Through rigorous planning, implementation, integration, and analysis, this project aimed to examine the impact on key performance indicators following the integration of Value-Based Care as an alternative to Fee-for-Service models. Quality-driven, proactive, and resident-centered dementia care resonates with the Value-Based Care initiatives of a vision of prioritizing the need to support the unique needs and dignity of those living in Memory Care settings. This project was developed out of the aspiration to catalyze change and encourage and promote interdisciplinary collaboration while fostering a culture of continuous proactive quality improvement. Through a blend of quantitative and qualitative methodologies, I invite readers to join me in efforts to use evidence-based practice, innovative practices of Value-Based Care models, and holistic approaches to improve dementia care and support equitable quality care to those entrusted to our care.
Acknowledgments

I want to express gratitude to my practice mentor, Melody Krattenmaker, whose guidance and unwavering support, thoughtful and insightful feedback, and constructive criticism enriched the quality of this quality improvement project. Melody’s invaluable mentorship, friendship, and encouragement challenged me to continuously improve my project and grow personally and professionally.

I thank my Faculty Mentor, Dr. Cathleen Colleran, whose clear and concise leadership, feedback, and guidance assisted with a diverse perspective that ultimately enhanced and shaped my final project. Dr. Colleran’s expertise, knowledge, and willingness to engage in an open dialogue challenged me to work through the nuances of this quality improvement project.

I am indebted to my colleagues, who generously shared their perspectives and experiences while giving significant time on this project’s development, implementation, and integration. Their unwavering support, motivation, and resilience allowed me to overcome all challenges in pursuing academic excellence.
Abstract

**Background:** Fee-for-Service models are quantity-focused reactive approaches and have historically been at the forefront of healthcare. Value-based models focus on proactive, resident-centered care that is aimed at quality care over quantity. Implementation of Value-Based Care models can positively impact healthcare and fiscal outcomes.

**Purpose:** The quality improvement project aimed to develop, integrate, and implement a value-based model in Memory Care as an alternative to traditional Fee-for-Service models. The project aimed to improve key performance indicators by reducing hospitalizations, emergency room visits, and falls following the implementation of Value-Based Care (VBC) models.

**Method:** Data metrics for hospitalizations, emergency room visits, and falls were pulled before and after VBC integration.

**Intervention:** A VBC model was offered as an alternative to a Fee-for-Service model in a Memory Care community. The community, residents, and legal representatives were educated on VBC models. Seventeen of twenty-three residents transitioned to a value-based model.

**Results:** The Quality Improvement (QI) project resulted in a 23.08% decrease in hospital admissions, a 41.18% decrease in ER visits, and a 41.03% decrease in falls.

**Conclusion:** The outcomes obtained can aid in striving towards dementia-focused care in which all residents receive holistic care of the highest quality while aiming to provide the highest quality of care and supporting the dignity that these residents deserve. This achievement supports using the transformative potential of VBC models within MC communities.

**Keywords:** Value-Based Care, VBC, Fee-for-Service Assisted Living, Memory Care, dementia care
Introduction

Problem Description

The convergence of VBC and Assisted Living (AL) is a promising frontier for redefining the healthcare system and healthcare delivery paradigms. AL communities, once a niche concept, have rapidly evolved and are now a cornerstone for the aging population due to the ability to provide a continuum of care. AL communities can provide care to their residents, from independent living to extensive direct care assistance with activities of daily living (ADL) and instrumental activities of daily living (IADL). AL settings assist with healthcare reform and transformation by offering services twenty-four hours a day, all while providing care in the resident’s home rather than a skilled setting.

Residents in AL communities can benefit from having primary care medical providers see them directly in their homes due to difficulty leaving the community to get to clinics because of mobility, cognitive, or mental health conditions. Most of these rounding providers utilize a traditional Fee-for-Service (FFS) model that focuses heavily on the number of services provided rather than the quality of care (Erickson et al., 2020). The FFS model, which historically has been the bedrock of reimbursement for healthcare organizations, is facing scrutiny by government agencies and healthcare payors for the limitations in the reduction of costs and improvements in healthcare outcomes (Erickson et al., 2020).

In FFS models, providers receive payment regardless of the effectiveness of the services that the medical provider orders, even if the provided services result in lateral or decreased resident outcomes (Lewis et al., 2023). FFS models raise concerns related to overutilization of services, lack of preventative focus, higher costs, focus on quantity rather than quality,
fragmented care, financial strain, lack of care coordination, variability in billing, short-term gain incentives, limited focus on holistic and resident-centered care, inequitable access to healthcare, and unnecessary hospitalizations (Health Recovery Solutions, 2023). Quick financial gains observed in FFS models can lead to concerns with short-term incentives that do not necessarily positively impact healthcare outcomes.

Short-term gain incentives exist if medical providers prioritize services that offer their organization quick payment over resident-centered and holistic care planning. Immediate reimbursement and ordering of services that may not be necessary or lead to improved health outcomes can lead to the residents' best interests not being kept in mind. Higher costs exist when overutilization of services and a lack of preventative healthcare occurs (Health Recovery Solutions, 2023). Insurance agencies, residents, and families can see these higher costs while healthcare outcomes are not necessarily improving despite the magnitude of services they may receive (Health Recovery Solutions, 2023). The financial burden of medical care can impact the emotional and physical well-being of the resident. Inequitable access to care may exist if the resident cannot pay for the services the medical provider recommends, leading to a healthcare disadvantage for the residents.

Financial burdens and short-term incentives can lead to fragmented care, a salient concern of FFS models resulting in disjointed communication with residents, legal representatives, and AL staff (Health Recovery Solutions, 2023). Communication breakdowns can lead to duplication of procedures and tests, potentially leading to gaps in care, such as missed diagnoses, treatments, and medication errors. Lack of care continuity can be observed if residents receive care from multiple providers or specialists who need to communicate with
each other regarding the plan of care and treatment needs but fail to do so. Lack of care coordination can exist in FFS models as providers have no strong incentive to communicate and collaborate on resident care (Health Recovery Solutions, 2023). Financial burdens can be reduced by implementing a VBC model that lowers costs and decreases the risk of communication breakdowns, lack of care continuity, and communication breakdowns (Health Recovery Solutions, 2023).

Preventative treatment plans play a critical role in VBC and FFS models; however, how care is delivered and reimbursed varies significantly (Stahlhut et al., 2021). FFS models tend to have a reactive focus on preventative care. While preventative services are available in the FFS model, there is no incentive to use these services (Stahlhut et al., 2021). Limited focus on holistic and resident-centered care may be present in FSS models if the medical provider does not prioritize resident-centered care by taking time to understand the resident's preferences, goals, and needs. Incorporating the residents' preferences into the treatment plan is imperative as it can offer the resident shared decision-making on preventative care.

A shift towards VBC emphasizes integrating resident preferences into preventative treatment plans to foster a proactive approach, compared to the reactive nature seen in FFS models (Stahlhut et al., 2021). VBC models can enhance preventative care and prioritize holistic approaches with early interventions (Health Recovery Solutions, 2023). Focusing on personalized treatment plans and preventive measures can assist AL communities in reducing costly acute healthcare interventions when underlying resident health issues are addressed before escalating or worsening. In VBC models, reimbursement focuses on preventing or
mitigating illness and disease, so preventative services are expected at the model's center (Stahlhut et al., 2021).

VBC challenges the FFS norm and offers a compelling avenue for quality-of-care improvements while mitigating unnecessary costs and improving healthcare outcomes (Health Recovery Solutions, 2023). Incorporating a VBC model into an AL community can assist with ameliorating healthcare outcomes, resource utilization, and resource allocation (Gibler et al., 2019). VBC models offer a fundamental departure from the traditional FFS models, aiming to align with the interests and needs of medical providers, residents, and payer sources (Erickson et al., 2020). The transformative path VBC models offer focus on improving healthcare quality, resident satisfaction, and resource efficiency. The alignment of stakeholders, such as residents, providers, and AL staff, shows that VBC is a promising solution to elevating the standard of care.

Pivoting to a VBC model signifies a commitment to optimizing outcomes, quality of care, and key performance indicators (KPIs) while controlling costs. Implementing VBC as an alternative to the FFS model in an AL is a testament to the adaptability of healthcare while promoting a culture of innovation, continuous learning, and improvisation. Integration of a VBC primary care rounding provider allows the AL to focus on data-driven decisions, care coordination, preventive health measures, resident-centered care, cost efficiency, resident satisfaction, and regulatory compliance (Health Recovery Solutions, 2023). A VBC model can assist with altering focus to a holistic and proactive approach, which can aid in meeting the broader goal of value-driven healthcare.

The synergy between AL and VBC allows for strategies such as care teams, care pathways, health information exchanges, resident engagement, and accountable care
organizations (ACOs) to address the significant concerns present with the current FFS models (Health Recovery Solutions, 2023). The transition from FFS to VBC models offers a profound shift in how care is provided. However, transitioning from an FFS model to a VBC model is an intricate and multifaceted challenge that requires extensive ongoing reevaluation of the proposed healthcare model and new innovative methodologies. Embracing new methods such as VBC can allow AL organizations to strive for the triple aim (Institute for Healthcare Improvement, 2023). Achieving the triple aim can occur through improving healthcare organizations by enhancing resident outcomes, reducing costs, improving healthcare outcomes, and achieving higher quality and effective care, all while lowering costs (Stahlhut et al., 2021).

Available Knowledge

A comprehensive grasp of the VBC model requires an ample understanding of the key terminology and principles guiding the philosophy and practices of value-focused initiatives. A shared understanding of accountable care, integrated care, person-centered care, care coordination, and VBC is required by stakeholders (Centers for Medicare and Medicaid Services, 2023c). Stakeholders such as residents, legal representatives, policymakers, and healthcare providers needed to have a shared understanding in efforts to be in lockstep when discussing, integrating, and implementing the VBC initiative, which serves as a foundation for transforming the healthcare delivery system.

Accountable care is a healthcare delivery model that aims to control costs and reduce fragmented care while taking a person-centered approach to improve efficiency, healthcare outcomes, and quality of care (Centers for Medicare and Medicaid Services, 2023c). The person-centered approach involves tailored services to meet the individual resident’s values,
needs, goals, desires, and preferences (Centers for Medicare and Medicaid Services, 2023c).

Shared decision-making that is incorporated into the person-centered approach ensures that
the planned treatment approach aligns with the resident, which ties directly to care
coordination, which is an approach that emphasizes the need for collaborative communication.

Focus on a seamless and integrated approach to collaboration promotes healthcare outcomes,
mitigates fragmented care, and reduces the risk of duplication of services (Centers for Medicare
and Medicaid Services, 2023c). This integrated care approach aims to provide comprehensive
healthcare, including mental health, social services, and medical services, aimed at holistic,
resident-centered care and coordination of services (Centers for Medicare and Medicaid
Services, 2023c). VBC is a healthcare payment and delivery model that aims to improve the
quality of care and reduce costs while focusing on improved healthcare outcomes. At the core,
VBC models include incorporating accountable care, integrated care, person-centered care, and
care coordination into resident care (Centers for Medicare and Medicaid Services, 2023c).

The VBC approach is congruent with resident-centered and holistic care, focusing on the
entire life cycle of care rather than a specific disease or needed treatment (Elf et al., 2017). VBC
models require that medical providers prioritize health outcomes and track health disparities
focused on different quality metrics, including ethnicity, gender, and race. Alignment of
healthcare services and interventions tailored to each resident's needs is required to support
holistic and whole-person care. VBC initiatives offer support that is specific to each resident's
needs and allows that resident to thrive during their distinctive healthcare journey. The
approach of VBC models attempts to seamlessly align resident-centered and holistic care
principles, which is critically important when addressing underserved populations, health
equality, and healthcare disparities (Dreyer & Joynt Maddox, 2023). Despite VBCs focusing on equitable care, underserved populations have challenges obtaining equal access to safe, high-quality, and tailored healthcare services (Dreyer & Joynt Maddox, 2023). This highlights the need for healthcare organizations to implement value-based models in efforts to assist with bridging the gap in healthcare disparities.

VBC models focus on underserved and vulnerable populations to achieve enhanced healthcare outcomes, which can occur when the medical provider prioritizes health equity. Underserved populations face barriers to healthcare services, such as income, rural locations, and ethnic or racial minorities, affecting their ability to receive timely and adequate healthcare services (Centers for Medicare and Medicaid Services, 2023d). Underserved and marginalized groups have historically had limited access to high-quality healthcare and, as a result, have had fewer positive health outcomes than other groups (Dreyer & Joynt Maddox, 2023). Reducing health disparities is emphasized in VBC models by an incentivized focus on improving healthcare outcomes in disadvantaged, vulnerable, and underserved populations (Centers for Medicare and Medicaid Services, 2023d). VBC rewards equitable outcomes by prioritizing person-centered care and mitigating health disparities that can aid in a more equitable healthcare delivery system. Prioritization of healthcare equitable outcomes aligns with VBC models and catalyzes the reduction of health disparities.

VBC models can measure health equity through the collection, review, and interpretation of demographic data in efforts to verify equitable care and access to care is being provided (Sandu et al., 2023). Health equity, however, remains the most significant gap in current VBC models (Dreyer & Joynt Maddox, 2023). Medical providers need to steadfastly
gather data on historical health disparities, ethnicity, and race (Dreyer & Joynt Maddox, 2023). Historically, opportunities exist for consistent data gathering of social determinants of health during health appointments with underserved populations. Despite historical opportunities for this information to be gathered, this data collection is needed to determine baseline information before implementing a VBC model. As a result of the limitations of availability of current data, resulting in the risk of being unable to decide on baseline quality metrics and KPIs directly accurately, it will not be easy to measure how the implementation of VBC models has impacted underserved populations (Dreyer & Joynt Maddox, 2023).

Safety Net Providers (SNPs) primarily serve low-income individuals, medically underserved populations, or individuals who do not have insurance and do not have access to traditional healthcare services (Centers for Medicare and Medicaid Services, 2023d). VBC models can incentivize SNPs to adopt innovative healthcare measures to improve health equity for underserved populations (Centers for Medicare and Medicaid Services, 2023d). Limitations occur as medical providers in rural and red-lined neighborhoods are historically less likely to adopt VBC models (Dreyer & Joynt Maddox, 2023). Engagement and education are needed for more SNPs to integrate VBC models to support underserved and vulnerable populations (Dreyer & Joynt Maddox, 2023). Integration of VBC models in these rural and red-lined neighborhoods is vital for transitioning underserved and marginalized populations from the FFS model to VBC.

The coronavirus pandemic accelerated the need for VBC innovation and SNP. The urgency placed globally on tracking, trending, and determining the effect of quality care was instrumental to the significant increase in healthcare organizations moving towards value based models (Larsson et al., 2023). The pandemic highlighted challenges within the FFS healthcare
structure and provided ample data on adopting new practices focused on cost allocation and effective care (Larsson et al., 2023). The underinvestment noted in public health spectrums during the coronavirus pandemic, particularly for underserved populations, sparked the need for quick adaptation to transparent, more agile healthcare models focused on value rather than quantity of care (Larsson et al., 2023). The coronavirus pandemic brought urgency for value-driven innovation and the need to implement value based programs in all healthcare settings.

Historically, VBC models have been implemented in hospitals and skilled nursing facility (SNF) settings, making integration of VBC models into AL communities new. There has been growing recognition of the significant benefits of value based models and initiatives across various healthcare platforms, including AL settings. As AL communities are trending on the journey of VBC integration, understanding lessons learned in SNF settings is instrumental in successfully adopting streamlined, holistic, and transformative strategies, conclusively, all while improving healthcare outcomes and quality of care.

SNFs utilize Value-Based Purchasing Models (SNF VBP), which are required value based models that aim at improving the quality of care and can receive incentive payments from the Centers for Medicare and Medicaid Services (CMS) (Centers for Medicare and Medicaid Services, 2023a). The Social Security Act includes sections 1888(g) and 1888(h), which required the development of SNF VBP programs and implemented incentivized payments to begin in October 2018 (Centers for Medicare and Medicaid Services, 2023b). SNF VBP programs are incentivized based on KPIs such as hospital readmissions, quality of care, performance, improvement, and achievement (Centers for Medicare and Medicaid Services, 2023b). The current KPI focus in these SNF VBPs is a thirty-day All-Cause Readmission Measure (SNFRM),
which evaluates readmission rates for all-cause hospital readmissions (Centers for Medicare and Medicaid Services, 2023a). The SNFRM does consider items that affect the probability of further hospital readmissions, such as comorbidities, health status variables, and resident demographics (Centers for Medicare and Medicaid Services, 2023b).

Similarly, AL communities can determine KPIs that fit their communities, such as fall mitigation, reduction of hospitalizations, and emergency room (ER) visits. Addressing, tracking, and measuring these KPIs can help determine the VBC model’s effectiveness. The utilization of SNF VNP in SNF represents a monumental step towards quality-of-care improvements in healthcare organizations, aligning with the landscape of VBC in AL settings.

The Minnesota Department of Health Services (DHS) implemented the Value-Based Payment (VBP) model into Medicaid-covered waiver services, such as brain injury, community access for disability inclusion, community alternative care, and developmental disability waiver programs (Minnesota Department of Human Services, 2022). Residents who utilize these waiver resources reside in SNFs, group homes, and Al due to needing assistance with ADLs or IADLs. The initial implementation of this VBP model started in 2021 and is a study that DHS is completing to determine the fiscal options and efficacy of health outcomes in non-skilled settings (Minnesota Department of Human Services, 2022). The VBP initiatives replicate standard VBC models with set benchmarks and payment systems based on service quality. Minnesota Statute 256B.4914 subdivision 10 (h) supports VBP implementation and states:

The commissioner, in consultation with stakeholders, shall study value-based models and outcome-based payment strategies for Fee-for-Service home and community-based services and report to the legislative committees with jurisdiction over the disability
waiver rate system by October 1, 2020, with recommended strategies to (1) promote new models of care, services, and reimbursement structures that require more efficient use of public dollars while improving the outcomes most valued by the individuals served; (2) assist clients and their families in evaluating options and stretching individual budget funds; (3) support individualized, person-centered planning and individual budget choices; and (4) create a broader range of client options geographically or targeted at culturally competent models for racial and ethnic minority groups (Minnesota Legislature, 2023).

This Minnesota Statute shows a need for healthcare organizations to understand, implement, and study VCB models and payment methods in the context of community and home-based services (Minnesota Legislature, 2023). Aligning with the global movement from FFS to VBC models, increased health outcomes, person-centered care, and efficiency are prioritized. While this VBP study remains in effect through 2025, the verified benefits still need to be discovered. The concept that DHS and Minnesota legislature support VBP and VBC initiatives supports the cause and need for implementation in AL communities. Minnesota was an early adopter of VBC models and requires that managed care organizations (MCOs) make shared saving payments to ACOs to reduce costs and increase service quality (Bailit Health, 2023). VBP and VBC models have significant potential to improve care quality and healthcare outcomes while lowering costs to the state (Bailit Health, 2023). Due to that, Medicaid and Medicare programs have considered and implemented the adoption of these models (Bailit Health, 2023). Overall, the Minnesota legislature and various governmental VB programs, such
as the SNFRM and VBP, support the need to focus on the quality of care provided and encourage or require the move from FSS to VBC models.

In June of 2023, CMS announced a VBC program named Making Care Primary Model (MCPM) to fortify primary care within eight states (Centers for Medicare and Medicaid Services, 2023e). Minnesota is the only state in the upper Midwest involved in this ten-year pilot that allows primary care models to enter arrangements within VBC (Centers for Medicare and Medicaid Services, 2023e). The MCPM is a vital step for primary care providers to integrate VBC initiatives into their practice. The MCPM focuses on the general principles of the VBC model. Measures that include enhancing health equity, access, and care availability are top priorities of the MCPM. The MCPM represents the vital need for integrating VBC models and initiatives into primary care. The emphasis on VBC principles such as health equity, healthcare outcomes, and improved access to care aligns with the overarching goals of VBC models. MCPM has made a commendable effort to integrate VB models in healthcare.

There have been global expansions of VB models as a response to the growing need to focus on quality versus quantity of care. Sweden has been the worldwide leader in VB healthcare models and implementation because their highly developed specialized, reimbursement, and outcome focused VBC programs have significantly reduced costs and improved care quality (Chipman, 2019). Sweden’s health digitalization and interconnection of healthcare records allow providers to access health information to standardize and enhance care at various locations. A mix of technology enhancements and artificial intelligence implementation has assisted with predictive methods for real-life data metrics to provide preemptive and preventative care (Chipman, 2019). These methods have assisted Sweden in
moving from a reactive approach with FFS to a proactive and preventive approach with VB models. Sweden has been a pioneer in their efforts for VBC methods, as seen by their innovative digitalization, outcome-driven reimbursement, and advanced specialization of value-focused models.

The remarkable precedent Sweden’s efforts have accomplished and the methods by which their VB programs have served as a benchmark, VBC-type programs have since been incorporated globally. In 2018, the Netherlands developed a five-year plan focused on healthcare outcomes, an initial step to transforming the Dutch system into a VBC model (Larsson et al., 2023). The Dutch government set four main goals for their new value-focused healthcare program: 1) determining outcomes to measure for diseases that represent at least half of the total disease burden, 2) shared decision-making supported by outcome data, 3) promotion of outcome-based contracts over quantity-based contracts, and 4) determine and facilitate timely access to quality metrics surrounding healthcare outcomes through a revamp of the informatics infrastructure (Larsson et al., 2023). Other expansions of VB holistic models have entered Singapore and Wales.

Incorporating VB models and initiatives into healthcare has been an ever-evolving inflection point while making significant strides in outcomes, collaboration, and cost control (Larsson et al., 2023). Nations such as Sweden, Netherlands, Singapore, and Wales have joined the global movement of driving improvement, managing costs, and fostering collaboration and communication, all while driving increased healthcare outcomes. Integration of VBC initiatives globally solidifies that various nations understand the impact of focusing on value and quality rather than the volume of care produced and services provided.
Despite significant VBC integration by various nations and through government systems, misaligned reimbursement incentives are widespread issues within the healthcare system. Misaligned reimbursements are directly tied to how reimbursement incentives are paid out with FFS models (Lewis et al., 2023). In VBC arrangements, the healthcare organization and the provider providing the VBC model can be incentivized based on their ability to meet quality, cost, and equity goals (Lewis et al., 2023). Bonuses and higher reimbursement are forfeited from payer sources such as Medicare, Medicaid, and personal health insurance programs if the planned objectives and healthcare outcomes are unmet. In these instances, there is the risk and likelihood that the VBC organization will need to pay into the insurance plans if they did not provide care that increased positive health outcomes. Separately, in VBC models, provider reimbursement and incentives are directly impacted by the quality of care. These cost savings can directly affect the medical provider and be passed on to the AL through shared savings arrangements.

Misaligned reimbursement incentives have caused the healthcare system to find issues with FFS models; however, a persuasive solution can be found in ACOs (Lewis et al., 2023). ACOs are a particular type of VBC model and play a pivotal role in meeting the primary initiatives of VBC: cost control, improved quality and resident outcomes, and care coordination and collaboration improvements (Lewis et al., 2023). ACOs were developed and designed to encourage increased communication, collaboration, and coordination between healthcare providers. The ACO’s ability to connect healthcare providers from various areas, such as primary care providers, transitional care centers, and specialty providers, is optimal for enhancing and meeting resident outcomes (Tulchinsky & Varavikova, 2014). Commercial,
Medicare, and Medicaid ACOs are necessary for VBC programs due to the provided framework that aligns with the core principles of the VBC model.

- Commercial ACOs are contracts through private insurance organizations that serve a substantial resident population and propose shared savings and risk-sharing arrangements (Brown & Crapo, 2017).
- Medicare ACOs focus on Medicare beneficiaries and allow shared savings if cost and quality metrics are met (Brown & Crapo, 2017).
- Medicaid ACOs operated under specific state Medicaid programs (Tulchinsky & Varavikova, 2014).

Risk sharing and shared savings are principal elements of ACOs that place financial accountability on quality metrics and costs (Brown & Crapo, 2017). AL organizations can partner with VBC primary care organizations to participate in the two-sided risk model to receive a portion of financial savings generated when high-quality care and improved outcomes of quality metrics and cost targets are met. The downside of this model is that if the costs exceed the set benchmark, the VBC organization and the AL could be required to cover a portion of the monetary loss (Brown & Crapo, 2017). This mutual risk-sharing element significantly encourages the VBC and AL organizations to manage costs, communicate, and collaborate effectively and efficiently. Alternatively, the AL could participate in shared savings models if quality benchmarks and cost savings are observed, with the most frequently seen shared savings model being an ACO (Brown & Crapo, 2017).

Quality benefits of VBC integration into AL settings include improved resident outcomes, preventative care emphasis, enhanced coordination of care, resident-centered care approach,
data-driven decision-making, quality improvement (QI) incentives, and support of holistic well-being (Teisberg et al., 2019). Quality components reviewed with VBC models include safety, resident-centeredness, equity, efficiency, effectiveness, and timeliness of care (Teisberg et al., 2019). Various dimensions of quality and multiple measures can be utilized to measure and track health outcomes. Incorporation of VBC principles into AL models enhances not only the healthcare quality but separately underscores the vital need for healthcare services to be resident-centered and comprehensive.

A resident-centered care approach propagates the needs and preferences of each resident. Understanding and supporting what the resident prefers in their care allows the medical providers and AL clinical staff to verify that the care aligns with the resident’s goals. Enhancement of the satisfaction of healthcare experience can be a benefit of a resident-centered care approach (Teisberg et al., 2019). Support of holistic well-being is a benefit of VBC due to the focus on the whole resident. Mental, emotional, and social health are addressed in the VBC model while allowing for positive impacts on the residents' quality of life. The resident-centered approach supports individual needs and preferences and provides opportunities to gather and analyze quality metrics based on residents. This assists with determining and ensuring that healthcare decisions are focused on a complete understanding of the resident's wishes, morals, values, and goals.

VBC drives data-driven decision-making. Data analysis is utilized to measure outcomes and KPIs and track progress. Continuous improvement and informed decision-making require the use of a data-driven approach. The accurate and timely evaluation of measurements and benchmarks is needed when measuring over the entire cycle of care (Elf et al., 2017). The
multidimensional approach to reviewing the data allows for understanding the increase or decrease in specific measurements. Evaluation of healthcare outcomes may only sometimes lead to improvements but offers data to be captured that can separately feed QI initiatives (Elf et al., 2017). VBC models accentuate data-driven decision-making; however, the challenge can lie in accurately and effectively translating the data into actionable information to drive tangible improvements in outcomes and quality.

Rationale

VBC models have decreased ER visits, hospitalizations, and falls in long-term care and skilled settings (Teisberg et al., 2019). Integrating preventative care emphasis into the VBC approach through vaccinations, proactive health assessments, and regular screenings to identify and mitigate the worsening of health issues. Enhanced resident outcomes can be seen when focusing on the resident's unique needs by integrating a tailored care approach (Teisberg et al., 2019). Influencing enhanced care coordination by increased collaboration and communication between the medical provider and the AL clinical staff can support improved outcomes. A comprehensive approach to care coordination can lead to enhanced care coordination. As VBC models have demonstrated their effectiveness in mitigating healthcare incidents, such as falls, VB models have provided methods for residents to receive resident-centered and individualized care and attention (Teisberg et al., 2019).

Specific Aims
The specific aim of this Quality Improvement project was to implement a VBC primary medical care provider model into an AL organization to improve the quality of care by a 15% reduction in ER visits and a 10% reduction in hospitalizations and falls for residents residing in a secured Memory Care (MC) unit. Outcomes were measured by tracking ER visits, hospitalizations, and falls for the residents.

**Methods**

**Context**

This QI project was implemented in one Minnesota AL community within the metropolitan area of the state capitol. Twenty-three residents currently reside in the MC unit. Resident apartments are a mix of shared and private, with communal areas within the secured unit. Monthly hospitalization rates are 35%, ER visits are 47%, and falls are 78%. The community has sufficient staffing levels of educated and qualified front-line, nursing, leadership, and administrative positions to fulfill general day-to-day tasks and with the capacity to increase job duties during the QI project. The community has seven leadership members, twenty-six regularly scheduled caregivers, and eleven as-needed caregivers. Sixteen team members in culinary, housekeeping, business office, and environmental services are not caregivers. The community offers care service offerings of at least set-up assistance with ADLs up to extensive assistance. Assistance with IADLs includes meal preparation, housekeeping, medication management, transportation, technology use, and scheduling appointments. Activity programs occur throughout the day, and onsite therapy programs are available as ordered by the primary physicians. Assessment completion and service plan reviews are completed as required by state regulations to include as needed for changes in condition. Changes to assessments and care
plans to support fall mitigation, safety protocols, and risk factors occur as required. The EHR system that is in place in the AL community has existing benchmarks, quality metrics, and dashboards used to determine historical data, payment models, and existing quality measures. Community culture is stable and supports the integration of a VBC model. The AL community contextually supports the recommended and required components of necessary stability to sustain the VBC integration.

The fiscal impact of this QI project includes indirect costs. The organization does not need recent technology systems or additional employees to complete this QI project. The VBC provided all literature and teaching collateral for the AL. The main impact on financials that this QI project affected was costs related to nurse time required post falls, ER visits, hospitalizations, and length of stay.

Nurse and caregiver time related to falls, ER visits, and hospitalizations was gathered for twenty-five incidents of each type. This information was gathered by the community nurses. The average amount of time was then calculated to determine what the fiscal impact of each type of incident was.

Nurse time required on average for each fall is 77 minutes. This includes the time needed for all the necessary nursing time, including managing the initial report of the fall (triaging directions or in-person assessment), in-person post-fall assessment, incident report, in-person comprehensive assessment for changed services, and updates to the service plan, communication with legal representatives, requesting order review or new orders from the primary care provider. Every reduction of a single fall gives a community nurse over an hour back to their week. An additional 120 minutes on average is required for caregivers to check
required vitals every two hours for twenty-four hours, document these vitals, and contact nursing for abnormal vitals.

Similarly, the average nurse time for managing ER visits is 92 minutes. This includes the time required for all required nursing time, including nurse-to-nurse with the ER staff, documentation in the EHR, review of ER paperwork, processing of any new orders, in-person comprehensive assessment for change in condition, and updates to the service plan. Communication with legal representatives to include obtaining a signature on an updated service agreement that provides for services and primary care providers.

The average nurse time for managing a hospitalization is 310 minutes. This includes the process of in-hospital assessment to determine the level of care and appropriateness for return to include averages of 55 minutes of nurse travel time to and from the hospital, 75 minutes of the evaluation at the hospital, including time spent in collaboration of care, and 30 minutes finalizing the comprehensive assessment and updating the service plan. This also includes initial collaboration with the hospital during admission, documentation in the EHR, ongoing calls with the hospital for collaboration, review of hospitalization documents, processing of any new orders, and communication with legal representatives and primary care providers. Once the resident returns to the AL from the hospital, the community nurse completes another comprehensive assessment to verify that the previous assessment and service plan remains accurate. Additional time is needed to obtain a signature on an updated service agreement that includes services.

Costs of care pertaining to care and rent were gathered, reviewed, and averaged for all of the residents residing in the MC setting. The average cost of care was determined to be
$4,500 per month per resident. This includes the average costs for ADL and IADL needs, including medication management. In addition to care costs, rent revenue averages $1,800 per month on top of care needs. On average, each resident provides a combined average of $6,300 in monthly revenue. The total monthly fiscal impact per resident was then divided by the average number of days in a month, 30.42 days. As VBC models can increase the length of stay due to the proactive approach to healthcare, every day the resident resides in the community provides the organization an average of $207.23.

Implementing VBC into AL requires increased staff time, particularly from information technology (IT), clinical, operations, and compliance departments. Time is a significant factor due to the magnitude of organizational departments affected by integrating a new rounding primary care group and the need to implement and complete this QI project within eight weeks. To streamline the transition, IT provided the VBC organization with access to electronic health records (EHR) to and furnished and verified access for all required VBC medical providers, sales directors, and clinicians. It was important that resource allocations were strategic while allowing for change and adjustment as the VBC program and integration adapt. Non-financial costs can include impacts on the regulatory environment, care coordination time, outcome measurements, family and legal representation involvement, feedback, cultural sensitivity, liability, legal considerations, and change management. The strategic integration process is guided by the cost-benefit analysis of implementing VBC into an AL setting. Decision makers and stakeholders needed to understand the potential non-financial and financial outcomes of implementing VBC.
The successful integration of a VBC model required an understanding of non-financial and financial factors that aid in the multidimensional approach of navigating the contextual elements. A robust understanding of the effect of the CBA framework was needed for an effective VBC integration while effectively managing resource allocation, managing time, and achieving the VBC initiatives of increasing healthcare outcomes and quality of care within an AL setting (Tulchinsky & Varavikova, 2014).

Interventions

This QI project implemented a VBC rounding model primary care providers into an AL community and specifically focused on the effect on residents in MC. The interventions listed included implementing the VBC and gathering data to determine the VBC program's effectiveness regarding the impact on falls, hospitalizations, and emergency room visits. The VBC implementation and integration can be incorporated into a Plan Do Study Act (PDSA) model. During the first phase of implementing the VBC, the AL organization needed to establish clear and measurable goals and objectives (Agency for Healthcare Research and Quality, 2023). For this QI project, the KPIs aimed to reduce ER visits, hospitalizations, and falls with and without injury. Risk stratification, care coordination, collaboration, cost management, and healthcare outcomes were identified. Stakeholders were determined, including residents, legal representatives, medical providers, AL community staff, and AL administration and corporate staff.

The VBC organization needed to be aligned with the objectives, mission, and goals of the AL organization, as this alignment facilitates the organization to see value in the partnership. The overarching objectives of VBC integration include collaboration and transparency
enhancements, improved communication, shared understanding, improved decision-making, increased employee engagement, and improved resident and legal representative satisfaction. The implementation and integration value proposition are significant components of the initial process as a value proposition that is well-crafted, concise, and strategic emboldens a successful implementation of VBC. Departments within the AL organization needed to understand VBC principles and collaborate with stakeholders. A multifaceted approach was required between operations, clinical, sales, information technology, compliance, and quality assurance. Each department has specific tasks, skills, and knowledge base for successful implementation. The operations, clinical, and sales teams within the AL communities needed to understand VBC initiatives and how they affect the management within their departments. As these departments have direct touch points, the VBC providers, being well versed in the front-line implementation, were required. The corporate IT, compliance, and quality assurance departments needed to understand the global effects of the VBC implementation. Thus, their required tasks, skills, and knowledge are aimed at aspects affecting the entire organization.

Table 1

<table>
<thead>
<tr>
<th>AL Department Required Tasks, Skills, and Knowledge</th>
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<tbody>
<tr>
<td>Operations</td>
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</table>
**Optimizing the Assisted Living Experience**

- Care process redesign
- Resource allocation
- Capacity planning
- Resident flow management
- Supply chain management
- Fiscal management
- Resident and legal representative education
- Resident access and scheduling
- Risk management
- Interdisciplinary collaboration
- Resident-centered care
- Data-driven care
- Chronic disease management
- Shared decision-making
- Resident engagement
- Performance improvement
- Training and education
- Data privacy
- Compliance and documentation
- Interdisciplinary communication and collaboration

<table>
<thead>
<tr>
<th>Sales</th>
<th>Information Technology</th>
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<tbody>
<tr>
<td>Product knowledge</td>
<td>Infrastructure assessment</td>
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<tr>
<td>Tailored solutions</td>
<td>Date interoperability and integration</td>
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<tr>
<td>Prospect and third-party provider education</td>
<td>Electronic health records</td>
</tr>
<tr>
<td>Return on investment analyses</td>
<td>Health information exchange</td>
</tr>
<tr>
<td>Collaboration with clinical and operations</td>
<td>Reporting tools, dashboards, and data analytics</td>
</tr>
<tr>
<td>Market Intelligence</td>
<td>Data privacy and cybersecurity</td>
</tr>
<tr>
<td>Alliances</td>
<td>Vendor partnerships</td>
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<tr>
<td>Advocacy leadership</td>
<td>User feedback for improvement</td>
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<tr>
<td>Value proposition</td>
<td>Technology integration</td>
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<td>Case studies</td>
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<tr>
<td>Success stories</td>
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<table>
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<tr>
<th>Compliance</th>
<th>Quality Assurance</th>
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<tbody>
<tr>
<td>Regulatory knowledge</td>
<td>Assess current practices</td>
</tr>
<tr>
<td>Contract review</td>
<td>Data collection and analysis</td>
</tr>
<tr>
<td>Reporting and transparency</td>
<td>Performance measures</td>
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<tr>
<td>Policy and process development</td>
<td>Risk Assessment</td>
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<tr>
<td>Release of information</td>
<td>QI initiatives</td>
</tr>
<tr>
<td>Ethical and legal considerations</td>
<td>Support and encourage the use of PDSA cycles, triple aim, Lean Healthcare, and Six Sigma</td>
</tr>
<tr>
<td>Auditing and monitoring</td>
<td>Data sharing</td>
</tr>
<tr>
<td>Regulatory updates</td>
<td>Outcome reporting</td>
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<tr>
<td>Performance metrics</td>
<td>Evaluation and adaption</td>
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<tr>
<td>HIPAA (Health Insurance Portability and Accountability) Business Associate Agreements</td>
<td></td>
</tr>
<tr>
<td>Data sharing agreements</td>
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</tbody>
</table>
Implementing the VBC fits into the second stage of the PDSA cycle. Training staff, engaging staff and residents, and implementing the change occurred in this planning phase. A significant amount of education was required for AL staff to understand the value proposition of the VBC integration. Processes, protocols, and technology may be modified to support VBC initiatives. Relevant data about the allotted KPIs was collected to aid in determining resident outcomes, satisfaction, and cost outcomes.

The following departments were required to buy in and approve from senior leadership (SL): operations, information technology, privacy, compliance, clinical, sales, and quality assurance. Weekly calls occurred between all SL members and the selected VBC to plan and implement the QI program within a community. Members of SL met with the community leadership in selected communities to educate on the VBC organization, VBC benefits, how to educate legal representatives, and how the community can assist with impacting resident outcomes by integrating VBC. Securing commitment, engagement, and buy-in from community leadership was vital to successfully implementing the VBC model. Extensive education on the differences between FFS, VBC benefits, and the VBC organization was needed for product knowledge. Further education occurred on how VBC differs from traditional payment models, how the VBC organization can assist with offloading nurse time, and how the VBC organization plans to focus on resident-centered care. Timely education is required in efforts to provide the community leadership with ample time to understand VBC and to be able to speak to it with legal representatives and team members of the AL.

The SL and community leadership determined the relevant KPIs to track resident outcomes and deliberate on the required data analytics. Utilizing data analytics through
available dashboards and reports evaluated the effectiveness of the QI project. Providing education on the significance of accurate data entry and how the data entered impacted trends and the final interpretation.

After the initial education by SL, a meeting with the VBC operators and the AL community leadership was scheduled. Effective implementation required that the VBC and AL leadership members comprehend expectations and each other’s roles. The initial meeting ensured stakeholders aligned with the objectives, scope, and goals of the QI initiative of implementing VBC. The teams discussed any needed clarification regarding any doubts, questions, or concerns that leadership members may have, including risk identification. Creating enthusiasm and buy-in of the VBC integration was crucial to building the caseload of residents on this service. Active engagement with AL community staff, residents, and legal representatives was integrated to augment understanding of VBC and overall experience.

Communication methods, timelines, and team-building items were discussed and determined. The team reviewed and addressed compliance, risk, legal, and regulatory considerations. This kickoff meeting was the starting point of the coordinated efforts of the VBC integration.

The VBC planned a family educational night in the community following this meeting. Emails, phone blitzes, and mailers promoted this family educational night. The VBC organization was onsite at the community and met with legal representatives and residents to discuss their care model as an option, the benefits of VBC, and any questions regarding this VBC offering. If the legal representative or resident elects to transfer primary care services to the VBC organization, the VBC sales leaders directed the next steps needed to initiate their VBC services.
Weekly meetings occurred between the SL and VBC to discuss opportunities, caseloads, and upcoming referrals. A weekly huddle was completed at the community between the community leadership and the VBC rounding medical provider, sales leader, and coordinator. Resident outcomes and KPIs were reviewed and discussed. The community leadership completed a huddle form to aid in gathering data for KPI tracking. At the community and SL levels, KPI data was reviewed on a spreadsheet and visual dashboard, including data metrics that were electronically and automatically pulled. The quality assurance team within the AL organization reviewed all KPI metrics to determine what changes have occurred with the selected KPIs.

Electronic health records and dashboards were reviewed to gather data to determine the number of ER visits, hospitalizations, and falls for the immediate six weeks before the start of the study. These numbers were compared to the data gathered during the six-week VBC integration. Noting the differences (increase or decrease) in KPIs assists in efforts to determine the effect of the VBC provider on decreasing ER visits, hospitalizations, and falls for specific residents.

The third stage included analyzing and evaluating outcomes following data collection and determining potential opportunities and successes (Agency for Healthcare Research and Quality, 2023). Celebrating successes where present and addressing opportunities are integral parts of VBC integration. Following a review of the quality metrics, a determination can be made on whether the VBC implementation's desired effects have been met. Stakeholders were engaged to gather feedback, perspectives, and insights on the implementation process of the
VBC model. Challenges of barriers to the integration process, data collection, or change management should be determined.

The last stage of the PDSA involves making refinements and adjustments based on the QI project's findings, including reviewing the quality metrics and stakeholder feedback (Agency for Healthcare Research and Quality, 2023). If the QI project leads to significant improvements, the AL organization should consider scaling the project to more communities within the organization's portfolio. As the AL wishes to implement VBC across additional communities, a PDSA cycle allows continuous improvement through systematic testing and refinement (Agency for Healthcare Research and Quality, 2023). Promoting continuous improvement, data-driven decision-making, and adaptability are all imperative to integrating VBC in AL. The PDSA cycle provides a framework for integrating, learning, and adapting the integration of the VBC model into AL, with a focus on learning from, adjusting course, and adapting to fulfill the full benefits of the VBC model (Agency for Healthcare Research and Quality, 2023). Successful implementation of the PDSA cycle can help the AL community reach the triple aim and full potential of VBC, including improving healthcare outcomes, controlling costs, and reaching resident-centered holistic care.

Lean Healthcare (LH) and Six Sigma (SS) methodologies can assist with streamlining processes, standardizing, enhancing efficiency, and controlling costs while maintaining and improving quality. By simplifying and streamlining workflows, LH focuses on identifying and eliminating healthcare waste, which can benefit the integration by mitigating unnecessary steps, resulting in a smoother FFS to VBC transition (Lawal et al., 2014). Process standardization is imperative in healthcare, particularly when integrating a new healthcare model such as VBC.
LH can support protocols and processes to verify that resident care is consistent, backed by evidence-based practice, and of the highest quality focused on improving health outcomes (Lawal et al., 2014).

SS utilizes statistical analysis to measure and improve healthcare outcomes, allowing the healthcare organization to understand quality metrics to make data-informed decisions (Hernandez-Lara et al., 2021). When implementing a VBC model, SS can assist the VBC organization in determining where overutilization of services exists (Hernandez-Lara et al., 2021). VBC’s cost control initiative and effective and efficient resource allocation support the cost savings that can be determined. Methodologies in both LH and SS focus on the significance and requirement for a continuous improvement culture. Optimization of resource allocation and healthcare outcomes are vital in removing FFS models while implementing VBC models. Implementing LH and SS methodologies provides practical tools that can enhance efficiency, standardize processes, and decrease waste – all of which are imperative to successfully integrating and executing a VBC model in AL.

PDSA, LH, and SS are intertwined with the Triple Aim (TA) framework due to shared goals such as enhancing resident experiences, improving healthcare outcomes, and reducing costs (Institute for Healthcare Improvement, 2023). A comprehensive approach to improving healthcare outcomes requires integrating models that strive to meet the overarching goals of transforming healthcare. The TA framework is an influential healthcare model aimed at improving resident experience and satisfaction, population health, and reducing healthcare costs (Institute for Healthcare Improvement, 2023). Encourages healthcare providers to be innovative to procure the above three aims simultaneously. The framework provides a clear
and comprehensive roadmap for integrating VBC into AL. TA can assist with helping AL organizations integrate VBC by enhancing and fostering communication with residents, legal representatives, and staff to build trust and rapport while improving the resident's experience (Institute for Healthcare Improvement, 2023).

Enhancements to preventative measures and wellness programs can be supported by the TA’s goal of health improvements. Preventive measures focused on chronic disease management can be enhanced through TA’s framework and collaboration between the VBC and the AL community (Institute for Healthcare Improvement, 2023). Verifying that residents receive the care they need while mitigating unnecessary services aligns with the TA’s resource allocation and cost containment objective. Performance metrics, data analysis, and continuous monitoring are critical components of TA and fully support the data-driven decisions that support the VBC integration (Institute for Healthcare Improvement, 2023).

The methodologies and frameworks of PDSA, LH, SS, and TA often complement each other, are intertwined, and have shared goals and objectives that align with VBC. Focus on improvement cycles geared towards cost reduction, resident experiences, healthcare transformation, waste reduction, and care efficiency can effectively impact the ability to transition from FFS to VBC models within AL.

**Study of the Intervention**

VBC implementation required clear, concise, and specific objectives and goals. The AL needed to determine the expected outcome of the VBC integration. Determining what KPIs the AL intends to focus the QI project on allowed stakeholders to understand the project’s specific
aim. These KPIs need to be concise and specific. Establishing and obtaining baseline data was required as these metrics were the reference point for determining improvements, care coordination, the collaboration of care, and communication, which aided in determining how the VBC and AL are working together in efforts to focus on the transition to VBC. KPIs were gathered before initiating the QI project to be available to compare to future results.

Establishing causality in this QI project required a rigorous review of data metrics and consideration of any possible confounding variables. Statistical analysis was needed to determine whether the healthcare outcomes are due to the implementation of VBC within AL. Ultimately, benchmarking the final data metrics assisted the AL with determining the impact of the VBC efforts.

**Measures**

When selecting specific measures, it is critical to understand the relevance of each step and how it relates to the goal of VBC integration into AL. Measurements with specific, measurable, attainable, relevant, and time-bound factors are vital. The rationale for selecting ER visits and hospitalizations is that these are significant cost drivers for the resident and legal representative. Extensive costs occur during ER visits and hospitalizations. Unnecessary emergency care and hospitalizations can negatively impact the resident’s mental, cognitive, and financial health. Health equity and inequality remain factors if residents are sent to the ER or hospitalized when not required without being able to pay for that care. Reducing ER visits and hospitalizations when appropriate is a common goal of VBC. ER visit and hospitalization percentages and rates were calculated for residents based on the data entered in the EHR. Thus, the accuracy and timeliness of the data entry are vital to its reliability.
The rationale for selecting a reduction of falls is that these incidents affect resident safety, and a reduction in falls can aid in reduced need for ER visits and hospitalizations, aligning with VBC goals. Separately, there is a risk of moving out if the resident or legal representative cannot pay for the required services or if the services needed with increased care needs are above the service offerings of the AL community. Fall percentages and rates were calculated per 1,000 resident days over the specified time. Clear documentation policies are present by the AL organization. With accurate, standardized, and timely fall documentation, valid and reliable data can be extracted from the EHR for tracking, trending, and interpretation.

Implementation of a comprehensive approach to determining the outcomes of contextual elements is imperative. Ongoing evaluations allow the AL to adjust to support the VBC initiatives best. Contextual elements refer to organizational, environmental, and external factors. Assessing and adapting to changes requires a deep understanding of flexibility. During implementation, it was determined that following were key contextual elements that we needed to consider and that directly impacted the project:

- Residents with significant comorbidities required more time from staff, thus significantly impacting the success of the VBC model integration due to their effect on cost and direction of health outcomes.

- The competence and availability of AL staff impact the operational efficiency and level of communication and collaboration that occurred with the VBC organization.

- Community resources, such as third-party providers such as hospice services, impact the ability of the VBC and AL to provide resident-centered and holistic care. Access to timely implemented therapy services could impact rehospitalizations.
• Engagement of residents, legal representatives, and community staff.

• VBC models need financial stability. Thus, alignment with governmental regulations is required.

• IT Infrastructure and VBC integration affect the ability to track and trend data about quality measures. Advanced data analytics programs assist with identifying care gaps, performance improvement, and high-risk areas.

• AL community infrastructure, such as apartment layout, affects care delivery efficiency (e.g., timeliness of answering call lights).

• Inflation rates and labor costs impact the cost-effectiveness of the VBC implementation.

Integration of data quality management tactics can aid in verifying that data metrics are complete and accurate. Completing ongoing data audits to cross-check documentation can assist in finding inconsistencies, inaccuracies, and missing documentation. Identifying discrepancies and errors allows data reconciliation to be achieved where opportunities exist. Data profiling and metric dashboards provide the ability to determine if outliers exist, which could indicate issues with documentation accuracy and allow for automatic data mining and validation. Dashboards can assist with data transformation, cleaning, and quality reports. These techniques can help find inconsistencies and data outliers and randomly select a data record sample to review provided insights into a specific subset of data metrics. Random sampling is a statistical technique that can be utilized to assess and validate data quality.

Analysis
Defining key metrics and establishing or maintaining a data collection system that can be reviewed regularly is an imperative step to determining the success or failure of the approach. Quantitative measures include using statistical analysis to identify trends, outcomes, and improvements. Tracking, reviewing, and trending health metrics on ER visits, hospitalizations, and falls to gauge progress. The use of standardized measurements, such as percentages or rates, to determine changes in health outcomes. Quantitative methods include reviewing data analytics to identify correlations between VBC initiatives and healthcare outcomes. Adequate time is needed in the QI project to establish baseline metrics. Collecting data metrics from the six weeks before the VBC implementation allows a benchmark to be determined. Baselines are vital for quantifying the effectiveness of the VBC initiatives. Closely monitoring metrics allows for quick identification of potential issues requiring immediate intervention.

Qualitative measures include focus groups, observations, and content analysis. Focus groups occurred with the AL community and VBC organization and helped understand the needs, experiences, and perceptions of the VBC integration.

- Family nights occurred before and during the QI project integration, during which the VBC offered education and discussed any needs or concerns.
- Weekly calls occurred between VBC leadership and AL SL to review potential barriers to be discussed and addressed.
- Weekly huddles occurred between the VBC medical provider, sales, clinicians, and the community leadership to discuss KPIs and needed improvement areas.
• Direct observations occurred on how the processes, protocols, and education sessions are managed to determine if workflow inefficiencies exist.

• Content analysis was completed with marketing collateral, education materials, communication materials, and meeting minutes were reviewed to determine if and where trends and challenges exist.

Qualitative metrics were collected over time and resulted in changes in perception from the stakeholders. Completing the QI project and through focus groups, the AL team was able to determine insights into the VBC implementation processes and adjust where needed.

Establishing a baseline of expected variation helped the AL understand when the VBC outcomes deviate from the baseline. The use of control charts can aid in detecting changes over time. The use of run charts can help in the visualization of trends. Using both run and control charts, VBC-related data points can assist with quickly identifying patterns and trends. Statistical process control (SPC) helps understand if the changes observed are due to interventions and not random variation. A combination of control charts and SPC methods can help understand how the integration of VBC intro AL impacts outcomes.

Longitudinal data metrics allow for a comprehensive understanding of the impact of the VBC integration. Through quantitative and qualitative methods, the AL and VBC teams can determine changes with KPIs, health outcomes, and informed data-driven decision-making while supporting the shift from FFS to a more resident-centered and continuous approach.

Determination of whether the QI project was the primary factor that impacted the outcomes starts with the clearly defined interventions, objectives, and metrics set in the planning stage. The data collection that occurred during and after the implementation of the
VBC integration serves as a point of comparison, and the frequent monitoring of the data and implementation process aids in ensuring the fidelity of the intervention—efforts to control any confounding variables that could influence the outcome. Using statistical techniques, comparative analysis, and time series analysis are tactics that help determine the QI project's effect. Evaluation and consideration of any alternative explanations for outcomes should be determined. Determining if implementing VBC into AL communities was the primary factor that affected the result required an extensive and rigorous evidence-based approach. Making an informed assessment after evaluating all information gained during the QI project aids in determining the effect of the intervention.

**Ethical Considerations**

A fundamental aspect of QI projects is to consider ethical considerations. Foundational ethical principles of beneficence and non-maleficence were taken into consideration throughout the entirety of this QI project. Resident safety and welfare principles were met by adhering to the specific aim throughout the six weeks of the project to enhance safety while minimizing the risk of resident harm. Reviewing consideration of the following ethical considerations includes:

- Providing residents, legal representatives, SL, and community leadership with accurate and timely education, communication, and marketing collateral regarding the VBC.
- Use of the VBC organization was a voluntary choice made by residents and their legal. Shared decision-making promoted the resident’s ability to be involved in their care regardless of whether they reside in a secured MC with applicable cognitive deficits.
• The legal representative or resident completed a consent and release of information form if they wish to transition to the VBC medical provider rounding group.

• Reducing health disparities and promoting equity is imperative in this QI project. VBC implementation would benefit residents of all demographics, backgrounds, and races.

• The resident's private health information (PHI) was kept confidential. Resident-specific metrics had PHI redacted upon incorporation into the written project. Federal requirements advise the management of PHI throughout the project and complying with ethical and legal regulations.

• Resource allocation, including time, was considered throughout the integration of the QI project. Allocation of resources maximizes benefits for residents, VBC members, SL, and community leadership.

• The risk of bias was considered when educating on VBC with residents and legal representatives when gathering, tracking, and trending data and during the interpretation of results.

• There are no conflicts of interest with this QI project.

Results

Resident Demographics

Seventeen residents transitioned from FFS to VBC models during this QI project. Knowledge of the resident populations allowed the QI project to have tailored and specific interventions while ensuring that the process, implementation, and review of quality metrics support equitable care. The below demographics table reviews resident age groups, gender, medical diagnosis, race, functional status, length of stay, insurance coverage, social support,
geographic location, language and cultural considerations, and risk factors. Resident demographics are significant and offer valuable insights into the preferences, values, and needs of the population served and involved in this QI project.

**Table 2**

*Resident Demographics*

<table>
<thead>
<tr>
<th>Age Distribution within the Memory Care</th>
<th>Seventeen out of the twenty-three residents residing in MC transitioned from FFS to VBC model during this QI project</th>
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<tbody>
<tr>
<td></td>
<td>o Five residents aged 65-74 years old</td>
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<tr>
<td></td>
<td>o Seven residents aged 75-84 years old</td>
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<tr>
<td></td>
<td>o Four residents aged 85-94 years old</td>
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<tr>
<td></td>
<td>o One resident aged 95 to 101 years old</td>
</tr>
<tr>
<td>Gender</td>
<td>Residents identify as 7% male and 93% female.</td>
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<tr>
<td>Medical diagnosis and need for MC placement</td>
<td>All residents have a diagnosis of Alzheimer’s, dementia, or other cognitive impairment.</td>
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<td></td>
<td>Residents required placement in a secured MC due to their level of cognition status and memory impairment</td>
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<tr>
<td>Race</td>
<td>Residents identify as 96% Caucasian, 3% African American, and 1% Hispanic.</td>
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<tr>
<td>Functional Status</td>
<td>Residents require ADL needs of at minimum set up for cares, up to and including two staff for all cares.</td>
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<tr>
<td></td>
<td>All residents require full assistance with all IADLs, including but not limited to laundry, housekeeping, and phone calls.</td>
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<tr>
<td>Length of Stay</td>
<td>Length of stay ranges between 2.5 months and 7.75 years.</td>
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<tr>
<td>Insurance Coverage</td>
<td>Residents are on a mix of Medicare, Medicaid, Veterans Assistance, and private insurance plans.</td>
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<tr>
<td>Social Support</td>
<td>All residents have a legal healthcare power of attorney (HPOA).</td>
</tr>
<tr>
<td>Geographic Location</td>
<td>The community involved in the QI project is in a metropolitan area of Minnesota.</td>
</tr>
<tr>
<td>Language and Cultural Considerations</td>
<td>Twenty-two residents speak English as a primary language.</td>
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<td></td>
<td>One resident speaks Spanish as a primary language but can comprehend and converse in simple English.</td>
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<tr>
<td></td>
<td>No residents or HPOAs express cultural considerations that would impact the use of VBC differently than FFS models.</td>
</tr>
<tr>
<td>Risk Factors</td>
<td>The most significant risk factors specific to this population include the cognition needs</td>
</tr>
</tbody>
</table>
By examining the above characteristics, the AL and VBC organization can better understand the needs and challenges seen during the project. This knowledge can lead to a tailored QI project that is effective, streamlined, and tailored to the residents in the quality improvement initiative.

**Integrating VBC into AL**

The DNP student led the QI project with significant support from SL, including members from clinical, compliance, quality, IT, operations, and sales. Throughout the various integration steps, members of SL were a significant support in keeping the project moving forward. The planning for this project started in the fall of 2023. Approval for this QI project was obtained effective December 12th, 2023. The approval process determined that an Institutional Review Board (IRB) was not required.

The eight-week QI project started with two weeks of preparation for integrating the VBC organization. In December, education with staff, residents, and legal representatives occurred. For staff, the first step of VBC integration was determining the AL communities' current knowledge of VBC models and determining team member engagement. The community's key stakeholders include the Executive Director, Health and Wellness Director, Care Team Manager, Sales Director, Life Engagement Manager, Culinary Services Director, and Environmental Services Director. In December, the community stakeholders were introduced to VBC initiatives, including specifics of the selected VBC organization. Stakeholders were educated on the benefits of VBC models and the value propositions on operations, clinicians, and sales. It was determined that community leadership had minimal awareness of VBC models. The initial discovery of current knowledge allowed for developing training that fit the community's needs,
specifically regarding the value proposition to clinical, sales, and operations of VBC integration and VBC versus FFS models. All the community key stakeholders attended VBC training help.

For residents and legal representatives, educational materials and marketing collateral were provided, followed by family nights, email blasts, and HPOA education in December. Phone blitz and email blasts occurred in December, followed by scheduled family nights on December four family nights. These family educational events allowed for the legal representatives to meet members of the VBC organization and allowed for live conversation on the differences between FFS and VBC models. In efforts to support resident choice and shared decision-making, despite residents involved in this project residing in secured MC settings, they were offered to be included in educational sessions and provided opportunities to ask questions. Following family nights, educational mailers, and calls to HPOAs, seventeen of the twenty-three residents and legal representatives chose to transition from their current FFS to a VBC model. The transition of 73.9% of residents from FFS to VBC models was higher than anticipated by the community leadership. Residents were admitted to the VBC organization as patients effective January, 2024.

This was followed by six weeks of the VBC integration whereas the VBC medical provider became the residents primary care provider from January through February, 2024. Of note, none of the residents or legal representatives who initially transitioned from FFS to the VBC model requested to stop the VBC model upon the end of the official QI project in February, 2024.

Initial data was gathered on pertinent KPIs on December, 2024, which provided baseline quality metrics on hospitalizations, emergency room visits, and falls. In February 2024, quality
metrics and KPIs were gathered and reviewed since implementing the VBC model within the AL by the EHR, dashboards, and Excel spreadsheets. In the last week of the pilot, the final effectiveness of the VBC integration was determined through the extensive review of the qualitative and quantitative data metrics.

The results were disseminated to the community stakeholders and SL. There is a plan to present data during an upcoming Senior Living Conference. That presentation will include advising on results from the QI project, which supports VBC integration into senior living communities, and difficulties and wins found during the FFS transition.

**Determining Quality Improvement Effect on KPIs**

Determination of the effectiveness of the VBC integration was required to understand the impact of the QI project. Data metrics were gathered and reviewed primarily with EHR dashboards to determine the effect. A Weekly Huddle form was developed and provided to the AL communities for weekly completion between January through February, 2024. The Weekly Huddle form supported and encouraged talking points during weekly meetings. See Appendix A for the Weekly Huddle form. The Weekly Huddle From was explicitly developed to gather data metrics that could not be pulled directly from the EHR dashboards. Random selection cross-checks were completed to confirm the accuracy of data manually entered in the weekly huddle form, which resulted in 98% accuracy. If the Weekly Huddle form was not finished in full, the community was contacted and requested to complete it to gather consistent KPIs. Throughout the six weeks of the QI project, the community completed all weekly huddle forms timely.

Baseline data was gathered at the start of the QI project and again after completion. As the project was eight weeks long, with six weeks of that time including residents being actively
enrolled and seen by the VBC provider, the baseline data was gathered six weeks before the start of the VBC model and compared to the six weeks of the active QI project. The table below shows the differences in baseline and post-VBC integration KPIs and quality metrics for hospitalizations, emergency room visits, and falls with and without injury.

Table 5

*KPIs and Quality Metrics*

<table>
<thead>
<tr>
<th></th>
<th>Age 65-74 years old</th>
<th>Age 75-84 years old</th>
<th>Age 85-94 years old</th>
<th>Age 95-101 years old</th>
<th>Total</th>
<th>Difference in Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline Hospital Admissions Over Previous 6 Weeks</td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>0</td>
<td>13</td>
<td>23.08%</td>
</tr>
<tr>
<td>Post VBC Integration Hospital Admissions During 6 Weeks of QI Project</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Baseline ER visits Over the Previous 6 Weeks</td>
<td>3</td>
<td>6</td>
<td>8</td>
<td>0</td>
<td>17</td>
<td>41.18%</td>
</tr>
<tr>
<td>Post VBC Integration ER Visits During 6 Weeks of QI Project</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Baseline Falls Over Previous 6 Weeks</td>
<td>11</td>
<td>9</td>
<td>13</td>
<td>6</td>
<td>39</td>
<td>41.03%</td>
</tr>
<tr>
<td>Post VBC Falls During 6 Weeks of QI Project</td>
<td>6</td>
<td>4</td>
<td>8</td>
<td>5</td>
<td>23</td>
<td></td>
</tr>
</tbody>
</table>

**Discussion**

**Summary**

This QI project was completed to address how a VBC model could impact hospitalizations, ER visits, and falls with and without injury in an MC setting within an AL. By studying value-based programs and VBC models within skilled settings, knowledge was gained on crucial factors of the vetting and implementation process and how KPIs could be affected by
value-based methodology. Baseline quality metrics were gathered, and data was compared to post-VBC integration data to determine the effects of the value-based model. A decrease in hospitalizations, ER visits, and falls with and without injury was observed.

**Interpretation**

Interpreting the outcome of the VBC integration required a comprehensive review of baseline data, goals and objectives, quantitative and qualitative data, contextual factors, understanding sustainability, and reviewing the cost-benefit analysis. Considering these factors allows the applicable stakeholders to have a comprehensive understanding of the outcomes of the QI project. Interpretation and analysis are required components of the VBC integration to understand the impact of the KPIs and provide the needed information to make informed decisions and support future strategies.

An overall examination of the implementation of the VBC integration where hospital admissions, ER visits, and falls were decreased, a nuanced analysis is warranted to understand the multifaceted implications of the implementation and outcomes fully. The crux of this overall evaluation surrounds the foundational principle of VBC, in which resident outcomes are the determining factor in fiscal incentives to healthcare organizations. This QI project resulted in a 23.08% decrease in hospital admissions, a 41.18% decrease in ER visits, and a 41.03% decrease in falls with and without injury. These decreases indicate that implementing the VBC model, rather than the previous FFS model, positively impacted healthcare outcomes for this group of MC residents once the care was focused on resident-centered, proactive, and preventative approaches. Reducing adverse resident events suggests that this QI project promoted improved resident outcomes and enhanced the safety and overall quality of life for
the respective residents. These changes in KPIs underscore the importance of personalized resident-centered care, communication, collaborations, and interventions tailored to the needs of the MC setting.

In reviewing the qualitative methods, the DNP student reviewed the attendees of family nights versus the number of residents transitioning from FFS to VBC, determined the number of calls back to legal representatives for education on VBC, and reviewed all weekly huddle forms that occurred between the community leadership and the VBC organization. Direct observations occurred during site visits in the community during the project implementation to observe and determine how the processes, protocols, and education sessions are managed to determine if workflow inefficiencies exist. These observations gave an outsider's perspective on where opportunities lay for resident-specific and holistic interventions.

Delving deeper, understanding the other potential contributors that are part of the VBC integration include understanding and reviewing the staff education, family and resident education, individualized care plans, understanding changes made by the VBC provider to medication management orders placed for proactive health care management such as labs, scans, and vaccinations. Reviewing other contributing factors, such as provider orders for implementation of therapy services to address mobility factors or cognition-focused services to address sensory impairments. The decrease in hospitalization, ER visits, and falls reflects a positive outcome that was impacted by the transition from traditional FFS models that focus on reactive care to VBC models that focus on proactive care and continuous, collaborative, and holistic care that is focused on preventing avoidable complications and reduction in acute exacerbations of residents chronic conditions.
Limitations

Proactively addressing limitations during the VBC integration was imperative to a smooth transition from FFS to VBC models. Specific challenges and limitations were encountered throughout the integration, primarily related to time constraints and team member buy-in. Time constraints were the most significant challenge, as changes in healthcare providers and processes take considerable time. While the results of the implemented QI project are promising, the time allotted for the project was not long enough to determine the long-term effect of VBC integration. Reviewing trends of the data metrics requires a six-month to a year timeframe to decide if there is a long-term positive impact on resident outcomes. The initial outcomes observed of this QI project support further exploration of VBC models in AL.

Beyond time limitations, staff buy-in was a challenging limitation of the VBC integration. Change management was required due to initial resistance from community team members. Root cause analysis showed that the initial resistance was due to fear of uncertainty and concerns with increased workload. While staff buy-in was obtained, extra time was required to listen, learn, and educate on how implementing the QI project could reduce workloads while acknowledging the upfront work. The additional time required for this education may have impacted the number of residents transitioning from FFS to VBC during the initial enrollment due to decreased availability for residents and legal representatives facing education.

Conclusions

Implementing and integrating the VBC model achieved the goal of decreasing the rates of hospitalizations, emergency room visits, and falls with and without injury for MC residents. This achievement supports using the transformative potential of VBC models within MC
communities. The comprehensive analysis completed after practical clinical knowledge and insights, empirical evidence, and theoretical frameworks supported the eight-week project. Analysis and comparison of the baseline and post-QI project quality metrics and KPIs determined a positive but minimal impact of the VBC integration.

This outcome supports and verifies the idea that VBC challenges FFS models and can provide residents and healthcare organizations with improved care outcomes, all while lowering healthcare costs (Health Recovery Solutions, 2023). The data metrics obtained during this QI project support the use of VBC in this MC setting and are further supported by literature that states that VBC models can decrease overutilization of services, lower costs, focus on quality rather than quantity, reduce financial strain, increase focus on holistic and resident-centered care, and reduction of unnecessary hospitalizations (Health Recovery Solutions, 2023). Furthermore, the outcomes support more significant socioeconomic imperatives, highlighting the ongoing potential for VBC models within MC settings. Dementia care carries heavy complexities that can be better navigated with the outcomes of this project, as the analysis and outcomes can support clinical practice, policy development, and organizational change in focusing on proactive care.

Though the QI project's timeframe was limited, adequate data was obtained to support further implementation of VBC models within AL organizations. Consideration of the continued use of VBC providers in MC is recommended. With literature supporting the need for proactive VBC models focusing on quality over quantity, further implementation of VBC models in MC settings could provide long-term data that supports the integration of VBC models in an expanded group of communities (Stahlhut et al., 2021). Implementing the VBC models is
actively taking place across the organization's portfolio. This expanded implementation will aid in the ongoing commitment of the organization to providing resident centered, holistic, purpose, and evidenced based approaches to care. The outcomes found in the project can aid the organization in striving towards a prosperous future of dementia-focused care in which all residents receive holistic care of the highest quality while trying to provide the highest quality of care and supporting the dignity that these residents deserve.

**Funding**

This project was funded entirely by the AL organization.

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**References**


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**Appendix A**

**Weekly Huddle Form**
### Value-Based Care (VBC) Huddle

<table>
<thead>
<tr>
<th>Community and Date - Sunday 12am - Saturday 11:59pm</th>
<th>Last Name of NP Attendees</th>
<th>Role/Last Name of VBC Attendees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ED, HWD, Nurses, CTM:</td>
<td></td>
</tr>
</tbody>
</table>

**Executive Director:** Review of VBC referrals/pending admission: List resident apartment and obtain VBC status of pending admits, date of first appointment if known, and list any NP action items for follow-up with the name of the person responsible for completing, e.g., Provide VBC insurance card information, Betty White, SD.

<table>
<thead>
<tr>
<th>Resident Name/Apt No. of Referrals to VBC</th>
<th>VBC Status Update/NP Follow-Up/TM Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resident Name/Apt No. Pending Admission to VBC</th>
<th>VBC Status Update/NP Follow-Up/TM Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Clinical: Review of Current Residents on VBC Caseload

<table>
<thead>
<tr>
<th>KPIs &amp; Changes of Condition</th>
<th>Apartment Number/s</th>
<th>Follow-up needed as applicable and party responsible (NP/VBC TM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ER/urgent care visit w/in last 7 days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospitalization w/in last 7 days:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return to hospital w/in 30 days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return from TCU w/in last 7 days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Falls w/in last 7 days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New or increase in behavioral expressions w/in last 7 days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication changes by non-VBC provider</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advance care planning needed post CCC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Provider Referral &amp; DME Needs</th>
<th>Apartment Number/s</th>
<th>Follow-up needed, as applicable, and VBC or NP TM responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapy referral needs (OT/PT/ST)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home health skilled nursing referral needs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospice referral needs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DME needs for ER/inpatient admissions or hospice discharge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>