



# The Value of Home Health Physical Therapy

The purpose of the Triple Aim is to improve population health, reduce healthcare costs, and improve the patient experience. These goals—to reduce cost while improving health outcomes and patient experiences have shifted utilization of services from other post-acute care settings to the home. The purpose of this perspective article is to discuss how home healthcare services, and home physical therapy (PT) specifically, provide value to patients, caregivers, and payers to meet the goals of the Triple Aim. This article will substantiate the value of home PT and provide healthcare professionals with evidence-based information on the value of home PT.

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**T**he goals of the Triple Aim, as defined by the Institute for Healthcare Improvement, are to: improve population health; reduce healthcare costs; and improve the patient experience (Berwick et al., 2008), and to find balance among the three goals, thus maximizing the value of the care provided. The purpose of this perspective article is to discuss how home health physical therapy (PT) provides value to patients, caregivers, and payers to meet the purpose of the Triple Aim.

Value in healthcare has been defined by Porter and Teisberg (2005) as “health outcomes per dollar spent.” They note that competition should theoretically improve value in healthcare, but has failed to do so. Marked inequities exist in healthcare provision, cost, and quality, resulting in poor patient satisfaction. One reason may be that the current system was born out of a financially incentivized market where healthcare decisions and delivery were based on monetary gains by insurance companies and providers rather than providing quality care (Rosenthal, 2017). Government policy subsequently focused on reducing healthcare costs through programs such as the Medicare Payment Advisory Committee, created through the balanced budget act of 1997 (Medicare Payment Advisory Commission, 2018). Focusing on outcomes and patient satisfaction generally results in decreased costs by ensuring provider expertise, minimizing redundancies, and improving communication among providers and patients (Medicare Payment Advisory Commission).

Discussion on value in healthcare settings comes in wake of new healthcare reforms with a move toward alternative value-based payment models in the continuum of care. The Comprehensive Care for Joint Replacement Model (CJR) is one example aimed to support better and more efficient care by improving coordination of care and shifting utilization to lower cost care settings such as home care (Dobson et al., 2012) versus inpatient rehabilitation (Centers for Medicare and Medicaid Services [CMS], 2018a).

### Home Health Physical Therapy in Population Health

Depending on physical, mental, and medical needs, individuals being discharged from hospitals may go to in-patient rehabilitation facilities, skilled nursing facilities/subacute care, assisted



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living facilities, home healthcare (under Medicare Part A—Certified Home Health Agency), or home with outpatient therapy (Medicare Part B—home-based or in clinic) (CMS, 2018b). The focus of this review is aimed at PT provided to beneficiaries under the Medicare Part A benefit provided by home healthcare agencies (HHAs).

Home healthcare (HHC) is a comprehensive, postacute care option for individuals who meet eligibility requirements including being homebound. Multiple services can be provided including: skilled nursing, PT, occupational therapy, speech therapy, medical social work, as well as the services of a certified home healthcare aide. Thus, HHC differs from other postacute care settings by providing a unique interdisciplinary care experience with comprehensive case management in the patient’s home. This encourages clinicians to work collaboratively to provide the tools, education, and resources unique to the condition of the patient and characteristics of their home in order to maximize safety and function, or to slow/prevent deterioration. Furthermore, HHC may be used to bridge the gap between an inpatient setting and assisted residential care to outpatient care. Home health PTs

and physical therapist assistants (PTAs) have the unique opportunity to observe for, and address, the social determinants of health in the contextual environment patients live in.

The World Health Organization released the International Classification of Functioning, Disability and Health (ICF) in 2001, which is a classification system to identify health, disability, and function. Among other things, the ICF delineates the impact health conditions can have on an individual's body structures and functions, their ability to participate in various activities, and participate fully and satisfactorily in various life roles. This is done through the promotion of health behaviors such as increasing physical activity and movement known to reduce the risk of chronic disease development (Taylor, 2014).

Five primary roles to be fulfilled by PTs have been described by the American Physical Therapy Association (APTA). These roles include: care manager for patients and caregivers, consultant, researcher, educator, and administrator (2016). In states in which PTAs participate in HHC, they support PTs by providing patient care and education, along with completing proper documentation and communicating with the PTs and other professionals as appropriate (Talbot & Miller, 2014).

Therefore, as part of that interdisciplinary team, PT enhances population health through comprehensive case management, use of evidence-based examinations, and interventions to promote better mobility and prevent deterioration at home (Medicare and Medicaid Programs, 2017). An evaluation of safe function is completed using the ICF biopsychosocial model integrated into the APTA Guide to Physical Therapist Practice 3.0 (2016), a practice resource intended to standardize practice, language, and to define specific elements necessary to be part of client/patient management. Evaluation factors include, but are not limited to: pain, medication management, movement patterns, range of motion, muscle power, nutrition/hydration status, systems review, activities of daily living, cognitive/emotional functioning, safety, and fall risk. PT interventions may include therapeutic exercises, functional training activities, and specific education for patients and caregivers about strategies and resources to safely manage in their homes and communities.

## Home Health PT May Lower Healthcare Costs

Home health PT strives to reduce costs by identifying risk levels for potentially avoidable events such as falls, pressure ulcers, and rehospitalization utilizing a variety of validated tests and objective measures, then designing and implementing plans of care to optimize outcomes. Overall, 9% of Medicare beneficiaries utilized HHC services in 2015. HHAs provided 6.6 million episodes of care to 3.5 million Medicare beneficiaries. Nearly 18 visits by HHA personnel are delivered in each episode, 36% of which are skilled rehabilitation (Medicare Payment Advisory Commission, 2018). Services are often provided to medically complex, generally sicker, and functionally impaired homebound older adults. HHAs also play a major role in new alternative payment models (e.g., CJR), as hospitals decrease utilization of higher cost postacute care settings such as skilled nursing facilities.

Medicare Part A currently pays for HHC services by a prospective payment system providing episodic payment to HHAs based on patient's geography (rural agencies receive higher payments), functional disability levels, medical complexity, and need for skilled rehabilitation services known as the case mix weight (Miller et al., 2016). Thus, higher utilization of rehabilitation directly correlates with higher HHC payments—a fiduciary relationship that provides impetus to support the value of these services. A new reimbursement model called the Patient-Driven Groupings Model has been passed (Bipartisan Budget Act, 2018) to shift volume and therapy thresholds toward value-based care (CMS, 2018c). This shift away from therapy thresholds for reimbursement does not diminish the value contributions of home health PT toward the Triple Aim to reduce healthcare costs.

Skilled rehabilitation services delivered in the home provide value to the healthcare system in a number of ways. Home health PT is less expensive for insurance providers than paying for rehabilitation in other postacute care settings after hospitalization or major surgery. The mean episode cost for a Medicare beneficiary was of \$2,988 (Medicare Payment Advisory Commission, 2018). This cost is substantially lower than other postacute care settings, with the mean cost of skilled nursing facility stays ranging from \$9,000 to \$12,000 (Medicare Payment Advisory

Commission). As care bundling initiatives across both Medicare and other private payers become more common payment models, it is likely that more patients will be diverted to HHC after hospitalization instead of skilled nursing facilities or inpatient rehabilitation facilities (Iorio, 2015). Increasing use of HHC rehabilitation services is likely to decrease downstream payer costs for patient care after acute hospitalization.

Secondly, utilization of home health PT services may reduce hospital readmission rates for older adults. Because readmissions are a reported quality outcome, this could have important implications for HHAs. Generally, PT services are delivered to homebound patients who could not access outpatient rehabilitation services. Improving physical function during this vulnerable period fills an important gap in the healthcare system, as low levels of physical activity in the first month after a hospitalization is associated with higher risk of hospital readmission (Fisher et al., 2013). Hospital readmission and patient mortality risk are also substantially higher for older adults who experience declines in physical function between hospital discharge and 30 days postdischarge (Volpato et al., 2011). Given that costs of hospital readmission to our healthcare system are extensive, and physical function is a major, yet modifiable risk factor, the value of PT for these patients may be significant (Falvey et al., 2016). In addition, Medicare costs for older adults are substantially related to levels of disability; those with the highest disability incur disproportionately greater healthcare costs (Kabiri et al., 2018).

### Home Health PT May Improve Patient Outcomes

Another important element of the Triple Aim is improving patient outcomes. Outcome measures to determine quality in HHC is publicly reported on Medicare's Home Health Compare with quality indicators utilizing Outcome and Assessment Information Set (OASIS) data (CMS, 2018d). PT services are associated with a number of important outcomes, including improved functional ability (such as bathing, transferring, and ambulation) and management of pain and dyspnea and prevention of pressure ulcers due to mobility limitations. Supervised PT may also improve other important outcomes for patients participating in HHC rehabilitation. A previous systematic review

showed that supervised exercise in the home setting was associated with reductions in fall rates and hospitalization rates (El-Khoury et al., 2013).

A number of studies have shown direct relationships between HHC services and improved patient activities of daily living (ADL) performance. In a study on patients with heart failure, those who used PT services were significantly more likely to experience recovery in ADL function over the course of care (Madigan et al., 2012a). Similar findings have been shown for individuals who were discharged to HHC after a stroke. Patients who used home PT after a low severity stroke had significantly greater recovery (220% better) on stroke-specific functional measures than those discharged to inpatient rehabilitation settings (Belagaje et al., 2015). Home PT also has value in improving function for patients receiving palliative care—an outcome which may improve caregiver burden, pain management, and ability to die at home versus at a hospital (Mueller & Decker, 2011).

Readmission rates are often higher for patients who attend inpatient postacute care settings after elective total joint replacement, making home a preferred destination for these patients (Welsh et al., 2017). Similarly, Medicare beneficiaries with a primary diagnosis of heart failure who did not receive skilled home health rehabilitation had a 40% increase in hospitalization during the home health episode compared with those who received one or more visits (Madigan et al., 2012b).

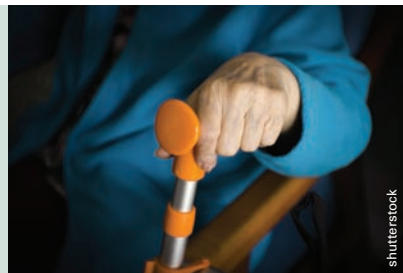
### The Patient Experience in Home Healthcare

Improvement of the patient experience in home health PT has not been adequately described in the literature. According to the Agency for Healthcare Research and Quality (AHRQ) (2017), patient experience:

*encompasses the range of interactions that patients have with the healthcare system [and] includes several aspects of health care delivery that patients' value highly when they seek and receive care, such as getting timely appointments, easy access to information, and good communication with health care providers. ("What Is Patient Experience?" para. 1)*

In contrast, patient satisfaction is about whether a patient's expectations about a healthcare encounter were met (AHRQ, 2017, "Patient

Given that costs of hospital readmission to our healthcare system are extensive, and physical function is a major, yet modifiable risk factor, the value of physical therapy for these patients may be significant.



Experience Differs from Patient Satisfaction,” para. 2). The scope of the patient care experience in HHC is typically measured using The Consumer Assessment of Healthcare Providers and Systems Home Health Care Survey (HHCAHPS), designed to measure the experiences of people receiving HHC from Medicare-certified HHAs and consists of Global Rating Measures, Care of Patients Composite (“Patients who reported that their home health team gave care in a professional way.”), and Communications Between Providers and Patients Composite (“Patients who reported that their home health team communicated well with them.”) (HHCAHPS Survey, 2018). The HHCAHPS does not specifically breakdown the data for patient experience with PT.

HHCAHPS Survey data are publicly reported to permit comparisons between HHAs on domains that are important to consumers and to provide an incentive for agencies to improve quality of care. Subsets of the survey was used specifically for Medicare’s Patient Satisfaction Star Ratings program to improve patient-centered care, promote higher quality communication with patients/caregivers, and promote timely resolution of care-related concerns. The star ratings are available on HH Compare (Smith et al., 2015). HHCAHPS® data from 2012 were used to analyze patient satisfaction with HHC and found patient satisfaction was high in all areas assessed including: overall experience, communication among providers, communication with patients, quality of care, among other areas (Cabin & Siman, 2014).

To compare patient experience across post-acute care settings, nursing home and HHC Compare tools are available on Medicare.gov website to facilitate better consumer choice by providing data and summary rankings on the patient experience delivered by all eligible postacute care providers. Unfortunately, only 7 of 16 measures on Nursing Home Compare relate to residents in need of rehabilitation including PT, making

it difficult to compare with HHC (McGarry & Grabowski, 2017).

Other than the HHCAHPS, a valid and reliable measure of patient satisfaction/experience has not been adequately described for HHC in general or for home health PT. The components of satisfaction have been shown to include: interpersonal relationships with providers, continuity of care, and staff competency (Lines et al., 2018). Medicare Data Sources found that the most predictive, explaining more than 18% of the variability in HHA patient satisfaction, was nonprofit ownership status (as compared with proprietary agencies), total costs, speech therapy cost, cost of administration benefits, and years of agency certification (Cabin & Siman, 2014).

A number of studies in the United States and abroad have demonstrated that HHC results in positive outcomes, for patients and caregivers (Abusalem et al., 2013; Cabin & Siman, 2014; Groff et al., 2016; Kadowaki et al., 2015). Patient experience factors can also affect 30-day readmission rates, which is an important outcome measure for HHAs and illustrates the intertwining of the value elements of the Triple Aim. Patients reporting high satisfaction and good provider communication with their HHC provider were less likely to be readmitted (Carter et al., 2018). A positive patient experience in home PT should include good communication with patients and caregivers, good interdisciplinary communication, continuity of care and patient-centered, competent care. Evidence of patient experience in HHC is the most limited of the elements of value in the Triple Aim, warranting further studies to explore the patient experience especially for PT.

### Future Research

Future research needs to focus on how home health PT shows value for all elements of the Triple AIM: improving population health, reducing healthcare cost, and improving the patient

experience. Home PT value should be compared with other postacute care settings with varying diagnoses, including but not limited to heart failure, stroke, chronic obstructive pulmonary disease, joint replacement, and hip fracture. In addition, further research on benefits and effectiveness of PT in the home setting including palliative care and programs for maintaining or preventing deterioration are needed.

## Summary

In summary, home health PT demonstrates value by reducing fall risk, decreasing rehospitalization rates, and improving function at reduced costs compared with other postacute care settings. Home PT contributes to positive patient satisfaction and experience, and is well positioned to partner with other healthcare providers to meet the triple aim of improving population health, controlling healthcare costs, and enhancing the patient experience. ■

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## Eating Red Meat Daily Triples Heart Disease-Related Chemical

Blood levels of a chemical tied to heart disease were higher when people ate a diet rich in red meat. Trimethylamine N-oxide (TMAO) is a dietary byproduct that is formed by gut bacteria during digestion. The chemical is derived in part from nutrients that are abundant in red meat. High saturated fat levels in red meat have long been known to contribute to heart disease, the leading cause of death in the United States. A growing number of studies have identified TMAO as another culprit. Prior research has shown that TMAO enhances cholesterol deposits in the artery wall. Studies also suggest that the chemical interacts with platelets—blood cells that are responsible for normal clotting responses—to increase the risk for clot-related events such as heart attack and stroke.

To investigate the effects of dietary protein on TMAO production, a research team led by Dr. Stanley L. Hazen at the Cleveland Clinic enrolled 113 healthy men and women in a clinical trial. The participants were given three diets for a month in random order. All meals were prepared for them, with 25% of calories from protein. The dietary proteins came from either red meat, white meat, or non-meat sources. The research was largely supported by the National Heart, Lung, and Blood Institute.

When on the red meat diet, the participants consumed roughly the equivalent of 8 ounces of steak daily, or two quarter-pound beef patties. After one month on this diet, blood levels of TMAO were three times higher than when participants were on the diets based on either white meat or non-meat protein sources. Half of the participants were also placed on high-saturated fat versions of the three diets. The diets all had equal amounts of calories. The researchers found that saturated fat had no additional effect on TMAO levels.

Importantly, the TMAO increases were reversible. When the participants discontinued the red meat diet and ate either the white meat or non-meat diet for another month, their TMAO levels decreased significantly.

