Landmark

A Home-Based Program that Extends Life and Reduces Cost

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Who is Landmark?

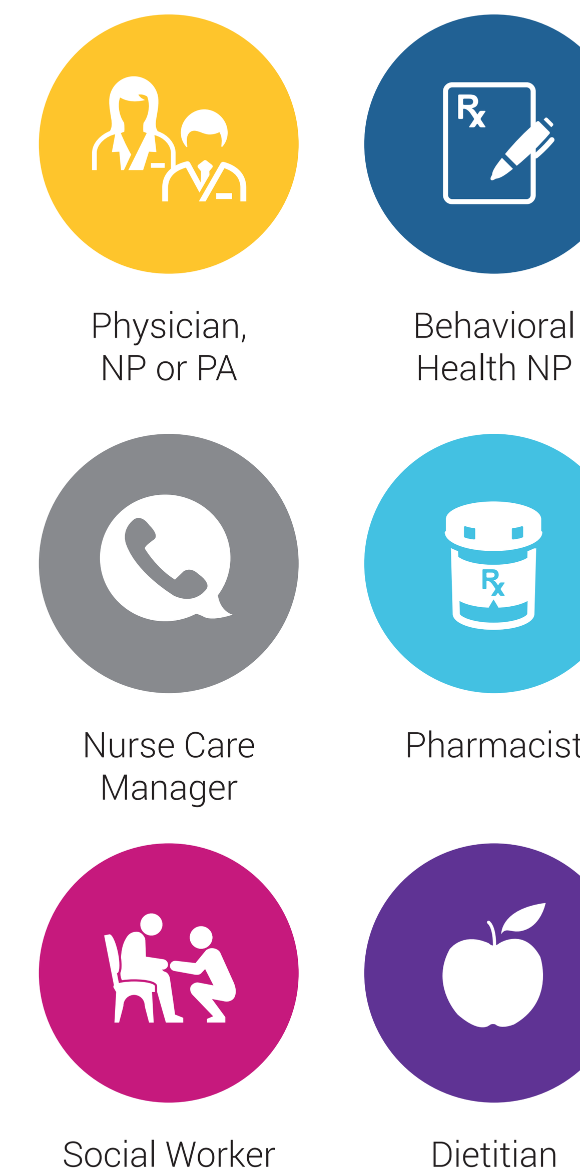
Landmark Health and its affiliated medical groups (Landmark) provide interdisciplinary care and in-home visits for high-risk, medically complex patients. Landmark partners with health plans and health systems to serve over 100,000 patients in fourteen states. Landmark provides longitudinal, urgent, post-acute, and palliative care for attributed patients until they safely transition to hospice, pass away, or change plan coverage.

Landmark's Model of Care

Landmark uses a proprietary claims-based algorithm to identify patients with multiple chronic comorbidities. These patients have high health service utilization and have an elevated risk of death. Landmark's high-touch, interdisciplinary model bridges the gaps in the current fragmented healthcare landscape, providing 24/7 care access to prevent and manage exacerbations and complications of chronic illness, as well as limit burdensome symptoms. Landmark's model is focused on consistent communication with providers across the longitudinal care system, including PCPs, specialists, inpatient teams, home health, and hospice agencies. This focus reduces high-cost sentinel event spending, mitigates downstream costs, and improves patient satisfaction.

Patient-centered Care Team

In keeping with palliative care principles, Landmark individualizes each patient's care plan based on personal goals. The care team includes physicians, advance practice providers, nurse care managers, social workers, behavioral health specialists, dietitians, ambassadors, pharmacists, and care coordinators. In addition to regular maintenance visits, providers are available by phone 24/7. Providers can be deployed quickly for in-home management of urgent problems and post-acute visits for safe dispositions from hospital or skilled nursing facility to the home. Clinicians spend their first month with Landmark training on chronic disease care, advanced symptom management, serious illness conversation skills, goal setting, psychosocial assessments, and procedural skills before they see their own patients. Daily team huddles and weekly IDT meetings foster consistent team communication and care coordination for patient care, as well as ongoing clinical training. An emphasis on early, frequent Advance Care Planning helps patients prepare for both expected and unexpected medical decisions, including end-of-life care.



20% reduction in costs in the last 12 months of life

26% { Landmark engaged patients had a 26% lower risk of death

Study Population

This was a retrospective cohort study of 36,393 Landmark Medicare Advantage patients who were attributed to Landmark between January 1, 2016 and June 30, 2018. Slightly more than half of these patients (56%) were eligible for Landmark as of June 30, 2016. The index date was the first month when members became eligible for the program during the study period. All members were followed until the end of health plan eligibility, death, or end of study period, whichever occurred first.

Once a patient is attributed, Landmark attempts to engage the patient. Engagement means the patient has given Landmark consent to treat them and completed an initial in-home visit.

Patient demographic factors were based on the index month. Chronic conditions and frailty were identified using 12 months of historical claims prior to the index month.

Table 1. Outcomes Measures

Outcomes	Data Source	Statistical Analyses
Demographic Factors (i.e., Age, Gender, CMS ESRD, Risk Score, and Long Term Care)	CMS Membership Monthly Report	Wilcoxon Rank Sum Test and Chi-square Test for continuous and categorical variables respectively
Baseline Chronic Conditions and Frailty Category	Medical Claims	Chi-square test
Mortality Rate and Hospice Events	Transaction Reply Reports (TRR)	Kaplan-Meier Analysis and Long-rank Test

Result 1 – Baseline Characteristics:

Table 2 shows the demographic characteristics of the ever engaged and never engaged subsets of the attributed member months during the sample period.

The ever engaged population had a similar age and gender mix but a significantly higher (+13%) CMS risk adjustment factor at the time the patients were attributed to Landmark. Engaged patients also had a significantly lower prevalence than non-engaged in long-term care facilities.

Table 2. Characteristics of Study Population

Characteristics	Ever Engaged	Never Engaged	P-Value
	N=15, 315	N=21,078	
Average Months of Exposure	21.3± 9.13	14.2± 10.11	<.0001
Age at Index Month	79.46 ± 8.68	79.33 ± 9.01	0.141
Female	8,281 (54.1%)	11,209 (53.2%)	0.092
CMS RAF at Index Month	**2.18 ± 1.31**	**1.92 ± 1.25**	**<.0001**
ESRD	255 (1.7%)	305 (1.4%)	0.095
Long Term Care	137 (0.9%)	1,057 (5.0%)	<.0001
Deceased	**2,278 (14.9%)**	**4,053 (19.2%)**	**<.0001**

Result 2 - Mortality Rate

To develop more precise estimates of the effect of the Landmark program on patient mortality risk controlling for exposure time as well as covariates that may affect mortality, we used the Cox proportional hazard model shown in Table 3.1 below. After controlling for underlying mortality risk, Landmark engaged patients had a 52% lower risk of death over the sample period. After limiting to patients who survive at least 9 months and controlling for underlying mortality risk, Landmark engaged patients had a 26% lower risk of death over the sample period shown in Table 3.2 below.

Table 3.1 Cox Proportional Hazard Mortality Estimates

Parameter	Hazard Ratio	Standard Error	P-Value
Ever Landmark Engaged	**0.483**	**0.027**	**<.0001**
CMS Risk Score at Month 1	1.195	0.009	<.0001
Index Year 2017	0.794	0.035	<.0001
Female	0.820	0.026	<.0001
Age < 75	0.551	0.041	<.0001
Age 75 – 79	0.749	0.042	<.0001
Age 85 – 89	1.417	0.038	<.0001
Age ≥ 90	2.223	0.039	<.0001
CHF	1.359	0.027	<.0001
High Risk Cancer	1.843	0.036	<.0001
Pulmonary Disease	1.087	0.026	0.001
Dementia	1.184	0.036	<.0001
ESRD	2.909	0.075	<.0001
Long Term Care	1.636	0.049	<.0001
Frailty Fall	1.204	0.034	<.0001
Frailty Vision Impairment	1.399	0.127	0.008
Frailty Weight Loss	1.411	0.039	<.0001
Frailty Problems Urinating	1.237	0.134	0.113
Frailty Ulcers	1.437	0.043	<.0001
Frailty Malnutrition	1.377	0.077	<.0001

Table 3.2 CPH Mortality Estimates – Patients Surviving ≥ 9 Months

Parameter	Hazard Ratio	Standard Error	P-Value
Ever Landmark Engaged	**0.739**	**0.036**	**<.0001**
CMS Risk Score at Month 1	1.237	0.013	<.0001
Index Year 2017	0.893	0.059	0.058
Female	0.809	0.035	<.0001
Age < 75	0.515	0.057	<.0001
Age 75 – 79	0.746	0.058	<.0001
Age 85 – 89	1.465	0.051	<.0001
Age ≥ 90	2.344	0.054	<.0001
CHF	1.279	0.037	<.0001
High Risk Cancer	1.360	0.056	<.0001
Pulmonary Disease	1.090	0.036	0.016
Dementia	1.137	0.053	0.016
ESRD	2.959	0.107	<.0001
Long Term Care	2.181	0.069	<.0001
Frailty Fall	1.399	0.127	0.008
Frailty Vision Impairment	1.606	0.181	0.009
Frailty Weight Loss	1.440	0.063	<.0001
Frailty Problems Urinating	1.040	0.139	0.776
Frailty Ulcers	1.437	0.043	<.0001
Frailty Malnutrition	1.377	0.077	<.0001

Notes: 1. Based on 26,130 patients who survived ≥ 9 months during study period so that Landmark had a chance to engage the member.

Result 3 - End-of-Life Cost

Table 3 shows the risk adjusted average medical costs per member per month (PMPM) for non-institutionalized and non-ESRD patients that did not elect hospice. This set of patients comprises 89% of the total. Total costs are capped at $250K per member per year to reduce the impact of outliers. Even for patients that did not elect hospice, Landmark's interventions (including a focus on palliative care at end of life) are associated with a 20% reduction in costs in the last 12 months of life.

Table 4. Average End-of-Life Medical Costs for Patients that Did Not Elect Hospice (Excludes ESRD and Institutionalized Patients

Engagement Status	Member Months	Risk Adjusted PMPM Cost	% Difference (Cost)
Never Engaged - *Last 12 months of life*	18,857	$4,652	
Ever Engaged - *Last 12 months of life*	15,181	$3,707	-20%
Never Engaged - *Last 6 months of life*	10,457	$6,464	
Ever Engaged - *Last 6 months of life*	7,807	$5,077	-21%