Redefining Population Health with Advanced Analytic Approaches and Predictive Modeling

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Meet the presenters

Amanda Skinner

RN, MSN, MBA, Vice President and General Manager, Optum Analytics

Jeremiah Reuter

ASA, MAAA, Vice President, Provider Risk Advisory, Optum

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Session objectives

1. Understand why analytics is becoming a strategic asset

2. Learn how new approaches to analytics can improve population health performance

3. Gain insight on best practices for increasing adoption of analytics to better manage risk across the continuum of care

$3 TRILLION

healthcare spend in the U.S.

>$350B

spent on **PREVENTABLE** hospitalizations in congestive heart failure (CHF), diabetes, COPD, hypertension, & asthma

Source: HHS

Transition to a fee-for-value world

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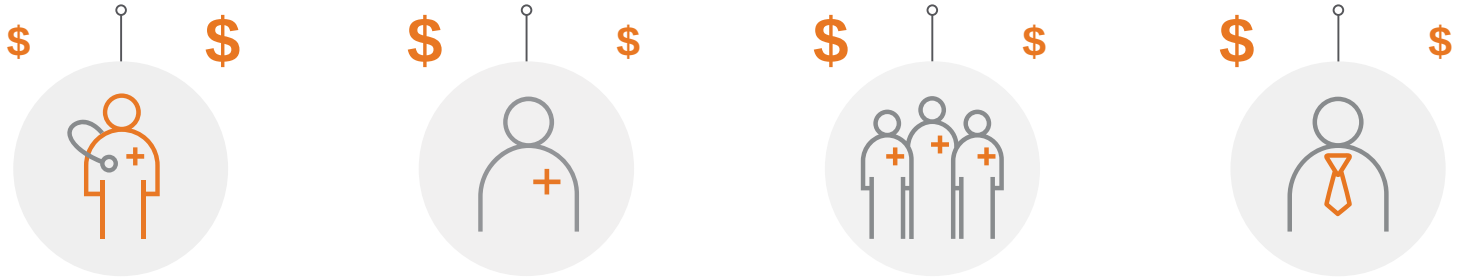
Assume responsibility for clinical and financial performance

DO BETTER WITH LESS



PHYSICIANS

NURSES

HEALTH PROFESSIONALS

ADMINISTRATIVE LEADERS

ENTIRE POPULATION

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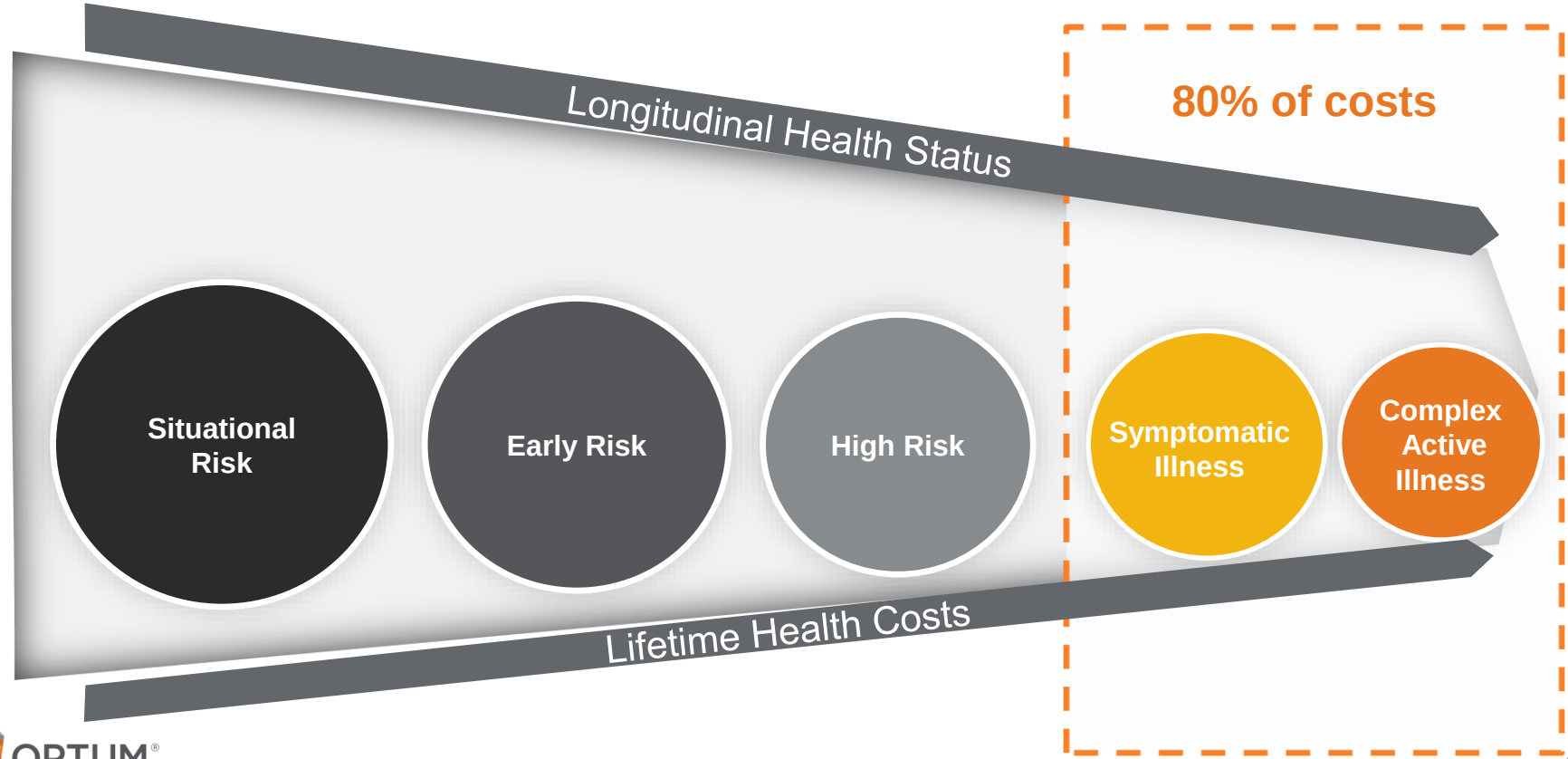
Target the right clinical and financial interventions proactively



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Advanced analytics identify and predict performance

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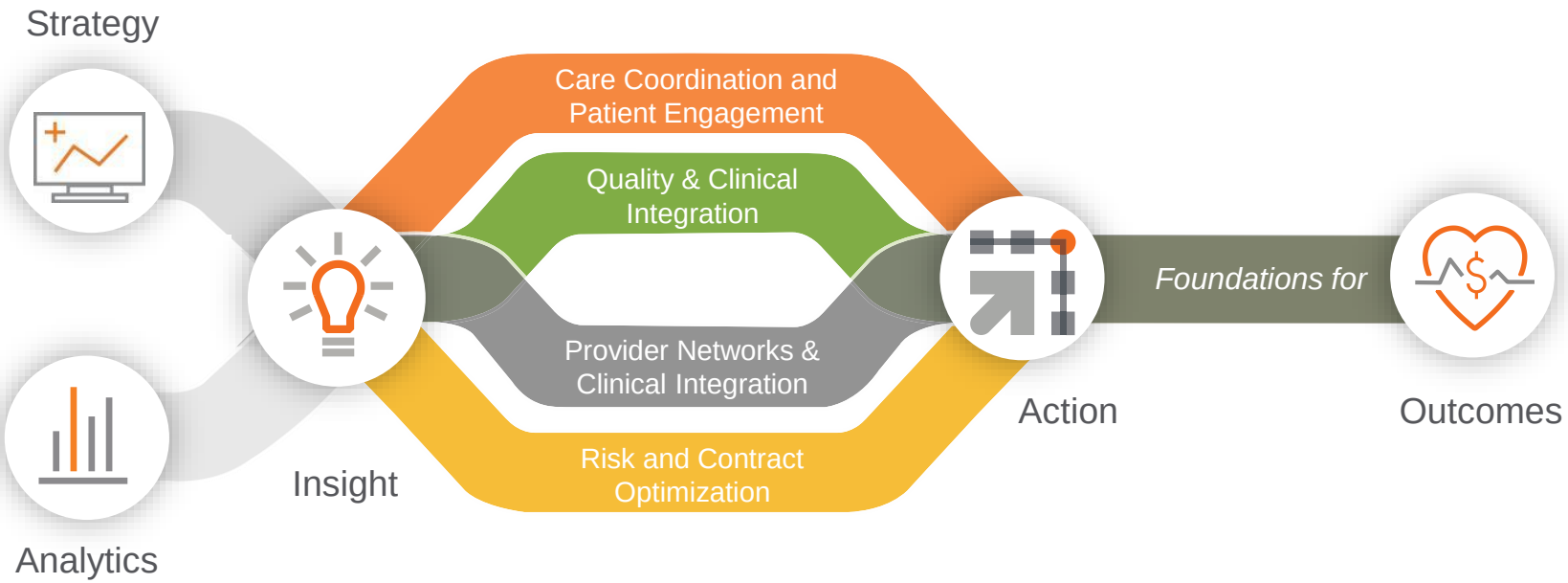
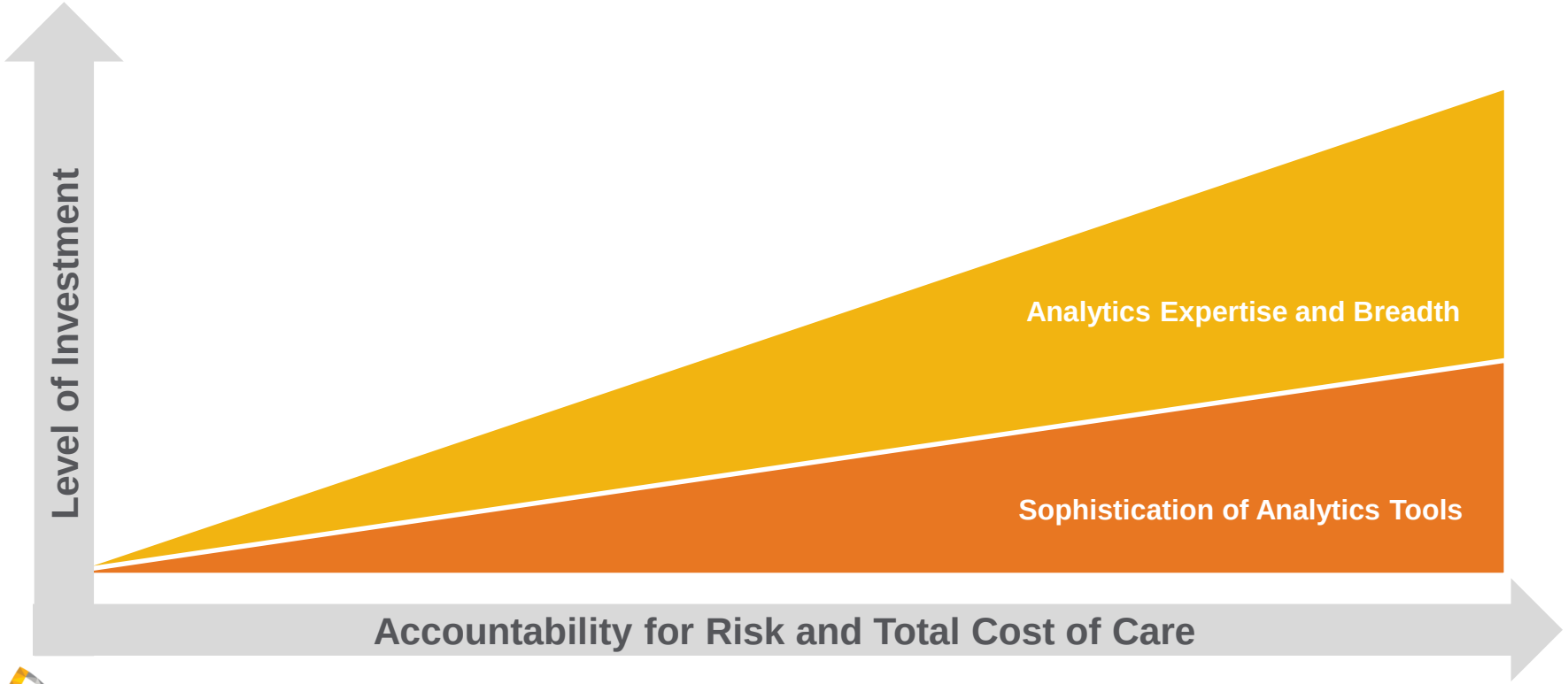
Analytics bridge the gap between insights and action



Accountability for risk and total cost of care



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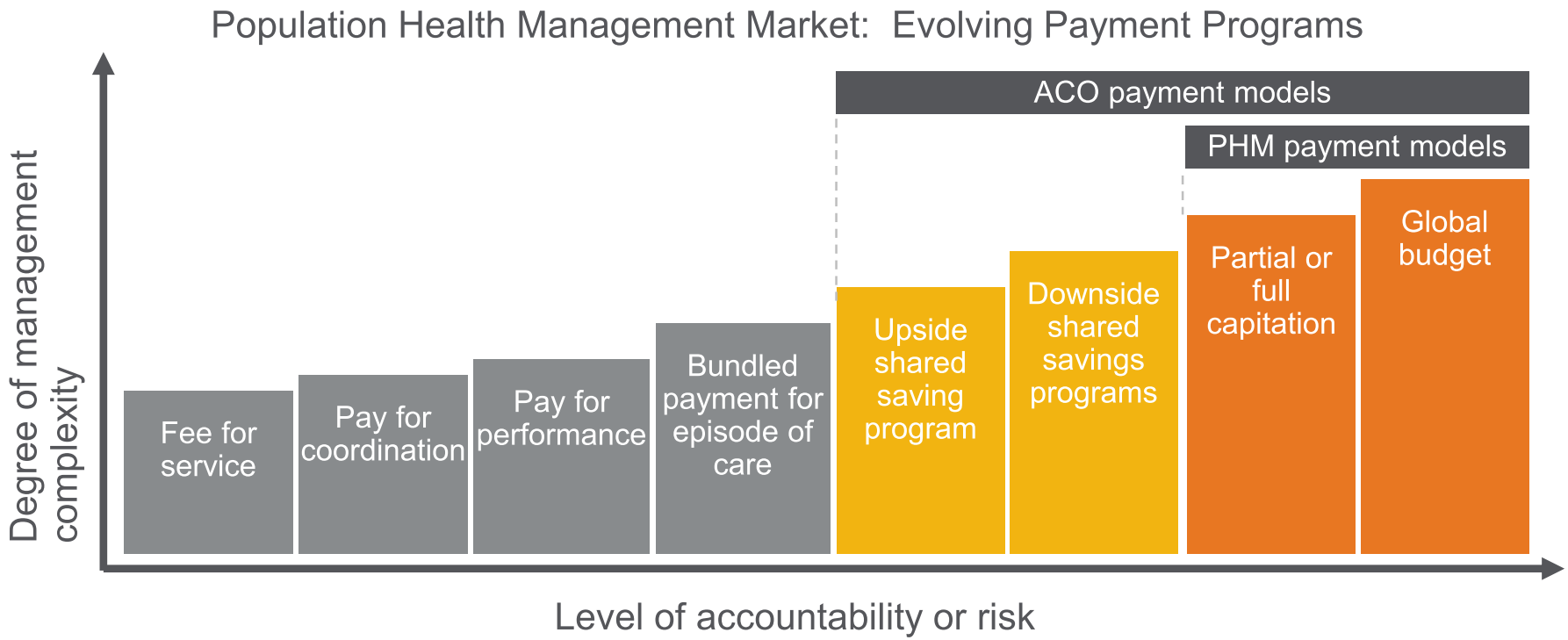
The Journey to Risk

The journey to risk



Source: Frost & Sullivan, 2016

Delivering care can be risky business

Utilization Risk

Technical Risk

Insurance Risk

Performance Risk

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Source: Society of Actuaries, 2015

Case Studies

Case study 1: diabetes care program

CHALLENGE	ACTION	OUTCOMES
Health plan assessed ~9,000 commercial members utilizing Optum analytics technology platform Of the 1,178 members with diabetes, **94 were statistically at a higher risk for hospitalization** within the next six months	Began immediate outreach to patient cohort In one week, **over two-thirds of the identified members** were scheduled for a visit with the organization's care team Targeted clinic visits consisted of A1c and BMI screenings, as well as clinical and lifestyle counseling	Decreased A1c lab results, LDL cholesterol, body mass index (BMI), Higher insulin use adherence Lower ED utilization Lower total cost of care and overall positive changes in patient habits and behavior

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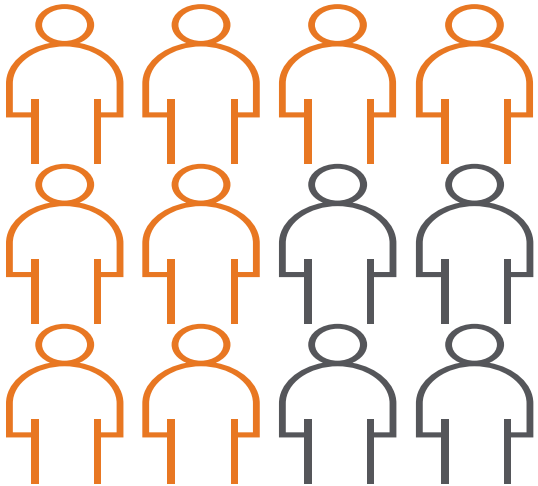
Source: Optum

Diabetes case study: outcomes

Two-thirds of at-risk cohort were scheduled for visits with a provider



Compared to patients who were not scheduled for a visit:

15% decreased A1c lab results

8% decreased LDL cholesterol

7% decreased body mass index (BMI)

24% lower emergency department utilization

Higher insulin **adherence** and changes in patient habits and behavior

21% lower total cost of care

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Source: Optum

Case study 2: palliative care

CHALLENGE

Hospice care programs often offer a **suboptimal patient experience** with fragmented care

Traditional models that delay palliative care result in:

- High patient anxiety
- Increased readmissions
- Decreased quality of life.

ACTION

Apply new, **proactive care delivery models**

Teams meet with patients earlier in the end-of-life process to reduce anxiety, better address depression, and affect overall utilization, while **increasing quality and even quantity of life**.

OUTCOMES

Over 4,000 new patients have been enrolled in palliative care programs. Early results show significantly reduced utilization and high levels of program satisfaction by patients.

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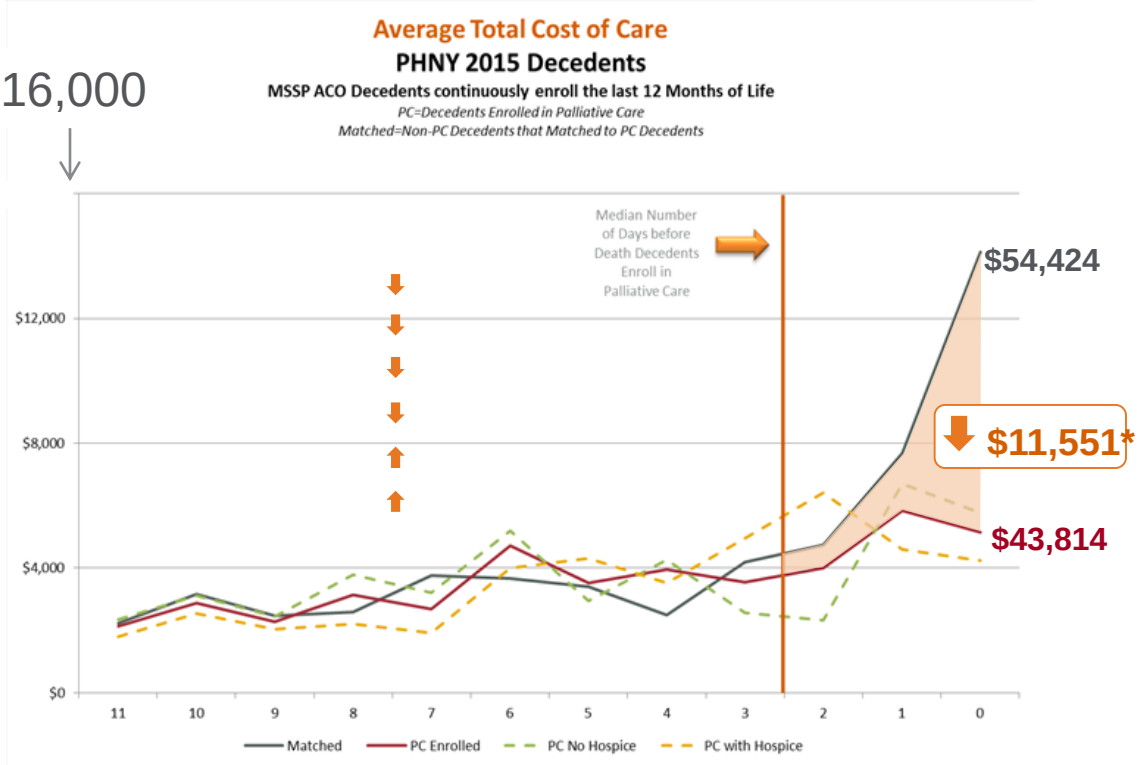
Source: Optum

Palliative care case study: end-of-life costs

Measure (Last 3 Months of Life)	**% Change**
Acute Admits/K	38%
Acute Days/K	39%
ED Visits	21%
% Decedents IP Admit Last Month	28%
Percent Enrolled in Hospice	28%
Median Hospice LOS	215%



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Source: Optum

Palliative care case study: challenge

How do we best deploy our scarce palliative care resources?

Analytics: Calculate the risk that a patient will expire. Separate algorithms for 6- and 12-month risk.

Data Source: medical claims and authorization data

Algorithm is based on over 80 factors, including:

- Demographics: *health plan enrolled months, age, and gender*
- Diagnoses Codes: *EXAMPLES-Cancer, Acute MI, Chronic Heart Failure, Peripheral Vascular Disease, Dementia, COPD, Rheumatic Disease, Liver Disease, Diabetes, Renal Failure*
- Utilization Patterns: *acute inpatient days, skilled nursing facility days, physician office visits*
- Total Medical Expenses
- Physical frailty indicators

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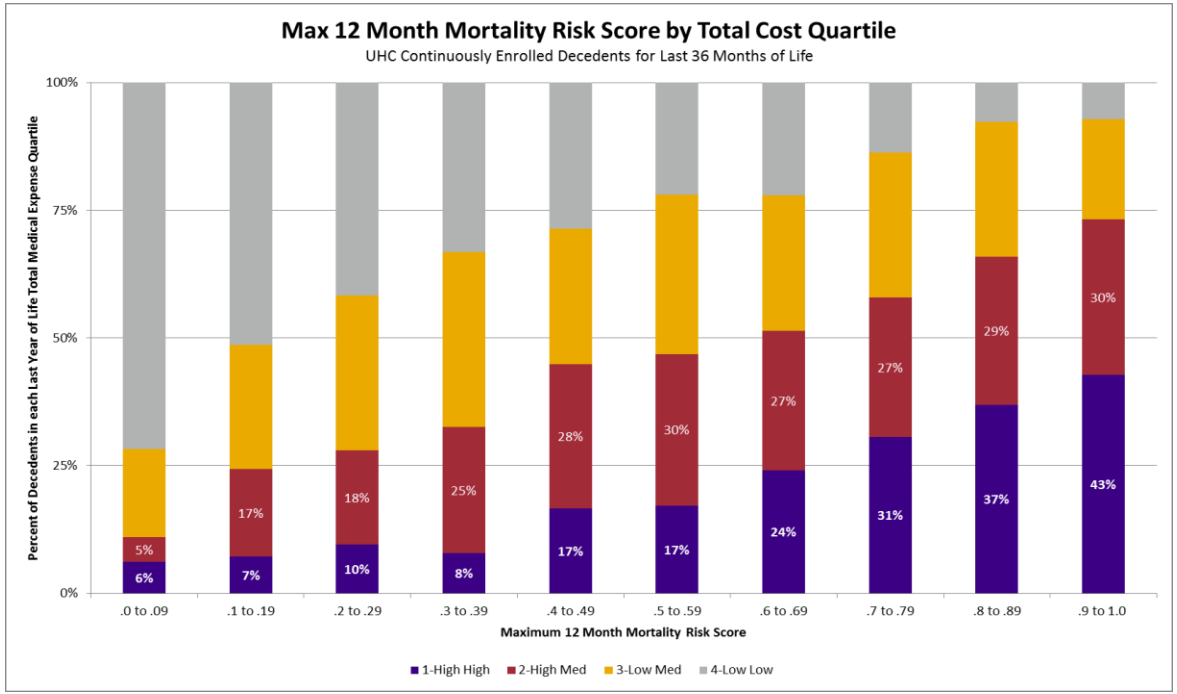
Source: Optum

Palliative care: risk prediction model



6-month model **performed at 85% accuracy**

For 12 month mortality risk model, 2013 experience used to predict deaths in 2014 **with 83% accuracy**

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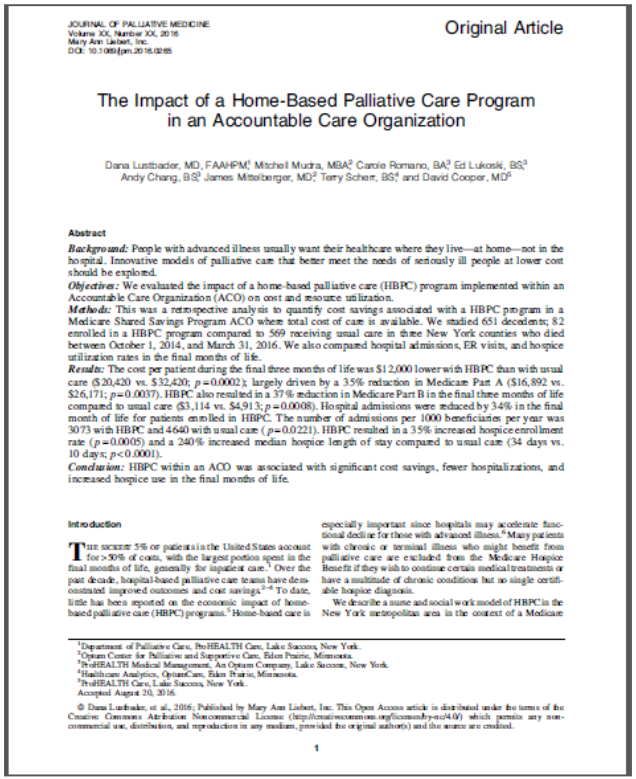
Source: Optum

Sharing our work



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Original Article

The Impact of a Home-Based Palliative Care Program in an Accountable Care Organization

Dana Lustbader, MD, FAAHPM,[1] Mitchell Mudra, MBA,[2] Carole Romano, BA,[3] Ed Lukoski, BS,[3] Andy Chang, BS,[3] James Mittelberger, MD,[2] Terry Scherr, BS,[4] and David Cooper, MD[5]

Abstract

Background: People with advanced illness usually want their healthcare where they live—at home—not in the hospital. Innovative models of palliative care that better meet the needs of seriously ill people at lower cost should be explored.

Objectives: We evaluated the impact of a home-based palliative care (HBPC) program implemented within an Accountable Care Organization (ACO) on cost and resource utilization.

Methods: This was a retrospective analysis to quantify cost savings associated with a HBPC program in a Medicare Shared Savings Program ACO where total cost of care is available. We studied 651 decedents; 82 enrolled in a HBPC program compared to 569 receiving usual care in three New York counties who died between October 1, 2014, and March 31, 2016. We also compared hospital admissions, ER visits, and hospice utilization rates in the final months of life.

Results: The cost per patient during the final three months of life was $12,000 lower with HBPC than with usual care ($20,420 vs. $32,420; $p = 0.0002$); largely driven by a 35% reduction in Medicare Part A ($16,892 vs. $26,171; $p = 0.0037$). HBPC also resulted in a 37% reduction in Medicare Part B in the final three months of life compared to usual care ($3,114 vs. $4,913; $p = 0.0008$). Hospital admissions were reduced by 34% in the final month of life for patients enrolled in HBPC. The number of admissions per 1000 beneficiaries per year was 3073 with HBPC and 4640 with usual care ($p = 0.0221$). HBPC resulted in a 35% increased hospice enrollment rate ($p = 0.0005$) and a 240% increased median hospice length of stay compared to usual care (34 days vs. 10 days; $p < 0.0001$).

Conclusion: HBPC within an ACO was associated with significant cost savings, fewer hospitalizations, and increased hospice use in the final months of life.

Introduction

The sickest 5% of patients in the United States account for >50% of costs, with the largest portion spent in the final months of life, generally for inpatient care.[1] Over the past decade, hospital-based palliative care teams have demonstrated improved outcomes and cost savings.[2–4] To date, little has been reported on the economic impact of home-based palliative care (HBPC) programs.[5] Home-based care is especially important since hospitals may accelerate functional decline for those with advanced illness.[6] Many patients with chronic or terminal illness who might benefit from palliative care are excluded from the Medicare Hospice Benefit if they wish to continue certain medical treatments or have a multitude of chronic conditions but no single certifiable hospice diagnosis.

We describe a nurse and social work model of HBPC in the New York metropolitan area in the context of a Medicare

[1]Department of Palliative Care, ProHEALTH Care, Lake Success, New York.
[2]Optum Center for Palliative and Supportive Care, Eden Prairie, Minnesota.
[3]ProHEALTH Medical Management, An Optum Company, Lake Success, New York.
[4]Healthcare Analytics, OptumCare, Eden Prairie, Minnesota.
[5]ProHEALTH Care, Lake Success, New York.
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Source: Optum

Q & A

Thank you.

amanda.skinner@optum.com

jeremiah.reuter@optum.com

www.optum.com

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