Identifying High-Risk Medicare Beneficiaries with Predictive Analytics

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Avalere

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Until recently, with the passage of the Affordable Care Act (ACA), Medicare Fee-for-Service (FFS) providers had little incentive to coordinate or manage care for high-cost beneficiaries, much less understand the individual characteristics that likely drive high health care spending. Over the next decade, Medicare Advantage (MA) enrollment is expected to grow, Medicare FFS payments will increasingly be tied to value and quality, and providers will inevitably take on more risk to serve an older and likely more complex member population.

Little research exists to identify the full range of bio-psycho-social factors that lead to high health care utilization. Research tends to focus narrowly on the medical conditions associated with health care utilization because payers have easy access to health information on the administrative claims providers submit for payment. As a result, most MA plans and provider strategies to identify high-risk members rely almost exclusively on administrative claims data, which overlook characteristics critical to care coordination such as lifestyle factors, behavioral health, and functional and cognitive impairment. To help understand the opportunities and challenges of managing high-risk Medicare beneficiaries, Avalere Health analyzed the person-level characteristics associated with high Medicare spending with a focus on identifying predictive non-medical characteristics, such as functional and cognitive impairments and social support.

When predicting and managing high-risk beneficiaries, health plans and providers need to take into account a member's lifestyle, behavioral health, and functional and cognitive needs.

KEY FINDINGS: As expected, several characteristics that increase the probability of being high-cost are related to a beneficiary's medical condition.

BENEFICIARY'S MEDICAL CONDITION OR MEDICAL UTILIZATION	INCREASE IN PROBABILITY OF BEING HIGH-COST *
High Medicare spending in the prior year (PMPM)	
Being in the top 10 percent of spending in the prior year	**11.3%**
Being in the top 20 percent of spending in the prior year	**8.8%**
Diabetes with complications	**8.8%**
Neurological or mental health conditions	
Neurological conditions	**8.8%**
Psychological conditions	**6.4%**
Cardiovascular conditions	
Acute Myocardial Infarction	**8.6%**
Vascular conditions without complications	**7.5%**
Kidney disease	**6.8%**

However, and potentially more importantly, some non-medical characteristics increase the probability of being high-risk but cannot be definitively identified using administrative claims.

BENEFICIARY'S NON-MEDICAL CHARACTERISTICS:	INCREASE IN PROBABILITY OF BEING HIGH-COST *
Self-reported fair or poor health status	**8.1%**
Having moderate functional impairment	**6.9%**
Age 85 and older	**6.6%**
Living in a residential setting in the prior year	**4.5%**
Living in a nursing home in the prior year	**1.8%**

*For the purposes of this analysis, high-cost is defined as being in the top 20% of Medicare spenders in the data year.

HIGH-RISK BENEFICIARIES MAY NEED LONG-TERM SERVICES & SUPPORTS: Heavy use of home health care (under the Medicare FFS benefit) in the prior year, having moderate functional impairment, advanced age, and living in settings that provide LTSS have a significant impact on the likelihood of being in the top 20 percent of Medicare spending. These results point strongly to a key set of beneficiary characteristics that predict risk of high Medicare spending: those that are associated with difficulties related to activities of daily living – in other words, needing long-term services and support (LTSS).

Beyond administrative claims, the following data sources may help health plans and other providers collect more robust patient information that could be combined with claims to better understand a person's potential to become high-cost:

- Electronic health records
- Health risk assessments
- Patient registries
- Home monitoring devices
- Clinician input (from day-to-day interactions with patients)

Recommendations

Plans should:

- Leverage other clinical data sources to collect more robust patient information.
- Collaborate with in– and out-of-network providers to establish consistent and efficient data collection strategies.
- Invest in, or improve, the plan's current risk prediction tools using a combination of clinical (electronic health records), health risk assessment, and administrative claims data to identify high-risk patients.

IN SUMMARY: Assessing medical conditions alone will not improve risk identification and population health management. Instead, to manage high-risk populations, health plans and at-risk organizations should account for a member's non-medical characteristics like functional and cognitive impairments, behavioral health conditions, lifestyle and living situation (i.e., nursing home residence), and their social support network. By doing so, these organizations will be able to develop a more sophisticated understanding of the predictors of risk. This analysis supports the opportunity for MA plans and other risk bearers to reduce their costs and increase quality of care by collecting the right information to better target high-risk members for care coordination services. While avoiding hospitalizations is important, there is an opportunity to improve care continuity as this particularly frail subset of the Medicare population transfers across settings of care; often, from hospital to post-acute and long-term care services.

METHODOLOGY: Avalere began by conducting a comprehensive literature review of the medical and non-medical person-level characteristics associated with having high-cost Medicare utilization. The analysis focused on identifying predictive non-medical characteristics, such as functional and cognitive impairments and social support needs, among others. Once a group of characteristics was selected, Avalere conducted a quantitative analysis of Medicare FFS beneficiaries in the Medicare Current Beneficiary Survey (MCBS)[1] for years 2007 through 2010. Using a risk prediction model, Avalere tested the relative power of person-level characteristics to predict whether a beneficiary will be in the top 20 percent of Medicare FFS spending. These models helped determine which person-level characteristics were associated with the largest increases in the probability of being a high-cost Medicare beneficiary in 2010.

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ABOUT AVALERE: Avalere is dedicated to solving the challenges of the healthcare system and improving care delivery through better data, insights and strategies. See more at: www.Avalere.com.

[1] The MCBS combines patient-level claims data with the results of a panel survey that includes non-claims based items such as the patient's self-reported health status, functional and cognitive impairments, social support needs, and other socio-demographic information.