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Predictive Modeling's Role in Care Management of Medicare Populations

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Medicare is a constant victim of federal budget cuts. Those working with Medicare beneficiaries are challenged to find innovative ways of providing expanded services while containing costs. Adding to the complexity is the high prevalence of costly chronic conditions in the Medicare population. Not all individuals with a chronic condition have the same overall health care needs, so a cookie-cutter approach to resource allocation and program interventions may lead to missed opportunities for impact and produce less-than-optimal results.

Predictive modeling can help identify those beneficiaries with the highest risk and capture those individuals with emerging risks that otherwise might be lost in the system. Coupling predictive modeling with integrated care management and the appropriate technology can help case workers ensure Medicare beneficiaries receive efficient, high quality, cost-effective health care.

Why Use Predictive Modeling?

Programs working with Medicare recipients are being challenged to go beyond traditional utilization, case, and disease management services with limited clinical resources. In order to meet that challenge, programs need innovative ways to identify individuals in the population not only with costly chronic conditions but also those at the greatest risk for adverse outcomes.

Predictive modeling tools can analyze data using complex logic and rules for millions of beneficiaries in a short period of time. These tools offer standardized methodologies that yield consistently valid results over time.

It has been estimated that 80 percent of Medicare beneficiaries have one or more chronic health conditions, with 20 percent having five or more and accounting for two-thirds of the total program spending. What that means is the Medicare population is "risky" by nature. Predictive modeling tools offer refined methods for risk stratification of individuals with additional parameters such as cost, utilization, and disease progression predictions.

While traditional case identification methods attempt to assess an individual's current risk status, predictive modeling looks at future risk and outcomes. Care opportunities identified by predictive modeling can guide proactive evidence-based care planning for more effective delivery and utilization of services.

Predictive Modeling Alone is Not Enough

While it may appear predictive modeling information is all that is needed to identify those at highest risk in a Medicare population, further evaluation is needed to determine the clinical significance of that risk. Most predictive modelers are heavily dependent on claims data, such as medical, pharmacy, and disability claims. It is well-known that all claims are not created equal (*e.g.*, incomplete or inaccurate coding, bundling or up-coding, lags in submission, et cetera). Relying on information from claims data alone for validation of risk can lead to inappropriate allocation of services and missed opportunities for impact. Integration of key non-claim driven information is necessary to adjust the predicted risk.

Beneficiary-provided information can be invaluable in identifying risks. Behavioral aspects of an individual, such as self-confidence, perceived barriers, and readiness for change, can have significant impact on a person's ability to actively participate in management of their health.

Chronically ill individuals, especially the elderly, are at the greatest risk for isolation and depression. These individuals often spent a great deal of time focused on health-related matters for themselves and others for which they care. Offering free access to a health risk assessment (HRA) for beneficiaries, either on a Web portal or via a mailed paper form, can assist in identifying individuals with potential socialization or depression identified risks.

A person's literacy level can influence health outcomes and risk. If an individual cannot understand instructions or read educational materials given to him on managing his chronic medical conditions, the chance for compliance with treatment regimes is greatly decreased. Noncompliance increases overall risk of disease progression and less than optimal outcomes.

Being able to more precisely identify critical risk factors is also important. Pin-pointing factors that are most likely to lead to preventable negative outcomes allows staff to implement system-wide changes and develop more effective interventions, as well as better leverage valuable clinical resources to impact those most in need.

Predictive Modeling Can Drive Better Care

Opportunities for improvement in care can be driven by predictive modeling. Information regarding a beneficiary's demographics, diagnoses, and medications are processed through the predictive model on a frequent basis, usually monthly. This information is compared to standards of care and evidence-based medicine. Gaps in care and care opportunities are identified for the care manager, saving time. This information is key to individualizing a beneficiary's plan of care and directs the care manager's focus toward quality and improved outcomes across the care continuum.

Timely information from frequent predictive modeling updates allows users to proactively identify members moving toward becoming "high-risk" before they are high cost. Risks associated with emerging health patterns can be assessed so appropriate interventions can be implemented early.

Predictive modeling identifies key drivers of risk for an individual. Knowing this information helps to more precisely target

interventions to those risk factors that are likely to lead to a preventable negative event, such as a skilled nursing facility (SNF) or long-term care (LTC) admission. As success is found in mitigating these risks with specific interventions, they can be integrated into care coordination strategies to effectively align the efforts of the care management team.

Technology Enhances Connection with High-Risk Beneficiaries

Integrated care management systems offer the opportunity for organizations to redefine how programs integrate, monitor, and manage beneficiaries at risk. Technology enables rapid access to beneficiary data, past patterns of behavior, health claim history, and pharmacy information, which could hold the keys to improving managed care and reining in health care expenditures.

- Integration of key information from disparate sources allows a more comprehensive view of an individual across the health care continuum. A comprehensive, up-to-date view of the beneficiary is available to staff.
- Cost-effective allocation of scarce resources can be system-driven. The intensity and type of resources can be assigned on predicted future risk of an individual. Content of medical management activities can be matched to the changing risk levels and needs of beneficiaries.
- Appropriate approaches to medical management essential to improve beneficiaries' health status and achieve positive outcomes can be identified. Members identified as at-risk through predictive modeling go beyond the traditional chronic conditions identified for referral to care management programs. This means that organizations will need to develop standardized best practice interventions for these conditions.
- Incorporation of ongoing bio-surveillance information assists in evaluation of ongoing risk. Changes in metrics, such as blood pressure and weight, can be identified early, and system-generated alerts to the care manager can allow rapid assessment and timely intervention with the beneficiary.
- System-driven workflows and integrated quality of care alerts/reminders facilitate efficient, consistent workflows designed to meet the multifaceted demands of a Medicare-focused care management program.
- On-going monitoring of targeted interventions for at-risk and high-risk beneficiaries through analysis and reporting tools enables for comprehensive, efficient examination of program trends, risks, and opportunities.

Integration of predictive modeling into programs focused on care coordination of Medicare populations can facilitate successful strategies and interventions with significant benefits for all concerned. While predictive modeling can help identify and stratify high-risk beneficiaries, additional information is needed to implement high impact interventions, which will result in positive clinical and financial outcomes. ■

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