Early Warning Signals: Predicting High-Cost Claimants in Time to Avert Billions in Unnecessary Spending

The number of individuals with high-cost and very high-cost medical claims is continuing to grow, consuming more and more of the total healthcare spend in the United States. The ability to predict which individuals are on a path to high cost, and which interventions have the best chance of preventing that eventuality, has become critically important.

At the greater than $250,000 annual cost threshold, this is needle-in-a-haystack hard work as high-cost claimants (HiCCs) average fewer than one in 1,000 members. To bring accuracy and fairness to this predictive analytic need, the combination of huge data sets, tested clinical algorithms, and equitable predictive and prescriptive models are essential for addressing the growing challenge presented by HiCCs.

Blue Health Intelligence® (BHI®) national analysis of HiCCs from 2016 to 2018 found that **members with allowed annual costs exceeding $250,000 increased by 30.4%**, costing $21.6 billion. Additionally, **members with allowed annual costs between $50,000 and $249,999 increased by 15.8%**, costing $75.3 billion.
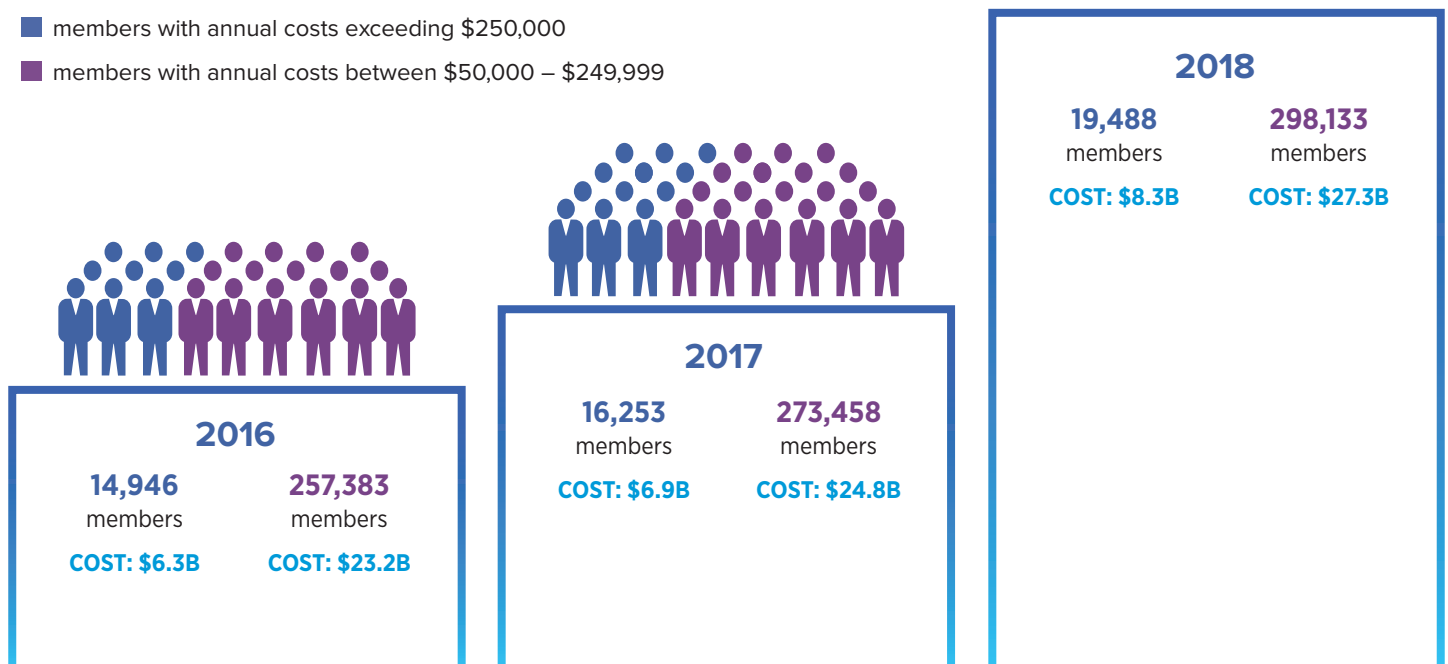
BHI's research further indicated that spikes in expensive claims are the result of numerous factors:

- The Affordable Care Act, which lifted annual and lifetime claim limits
- More diagnoses of serious and chronic health conditions
- Increased utilization of specialty medications and pediatric specialty care – 13% of HiCCs reach that level due to specialty drugs
- Treatment innovations – especially for cancer
- Advances in overall healthcare technology

THE GROWING IMPACT OF HIGH-COST CLAIMANTS*

■ members with annual costs exceeding $250,000
■ members with annual costs between $50,000 – $249,999

2016
14,946 members
COST: $6.3B

257,383 members
COST: $23.2B

2017
16,253 members
COST: $6.9B

273,458 members
COST: $24.8B

2018
19,488 members
COST: $8.3B

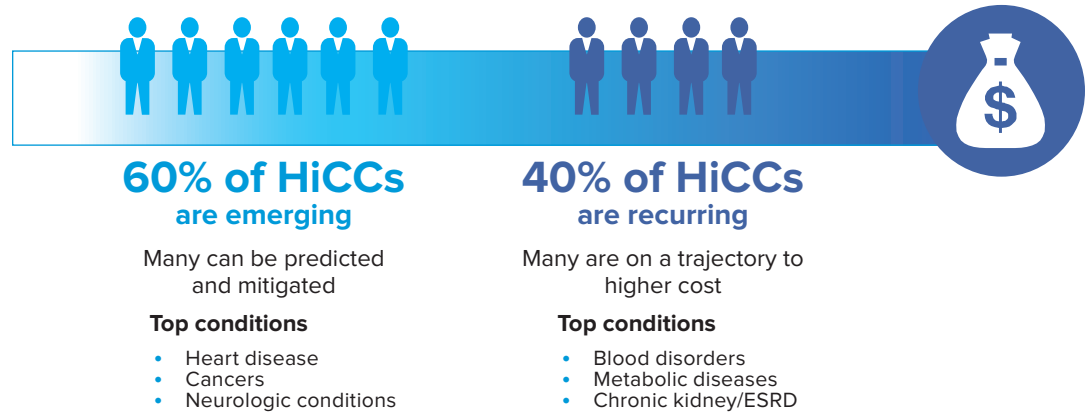**298,133** members
COST: $27.3B

* BHI's HiCCs analysis used a large national sample of commercial group business health plan members with both medical and pharmacy benefits who were enrolled in Preferred Provider Organizations.

Once they get there, HiCCs tend to stay there

In 2017, 44% of HiCCs with more than $100,000 in annual spending had at least the same amount of spending in 2016. During 2017, 21% of HiCCs migrated from $100,000 in spending to the $250,000 range.
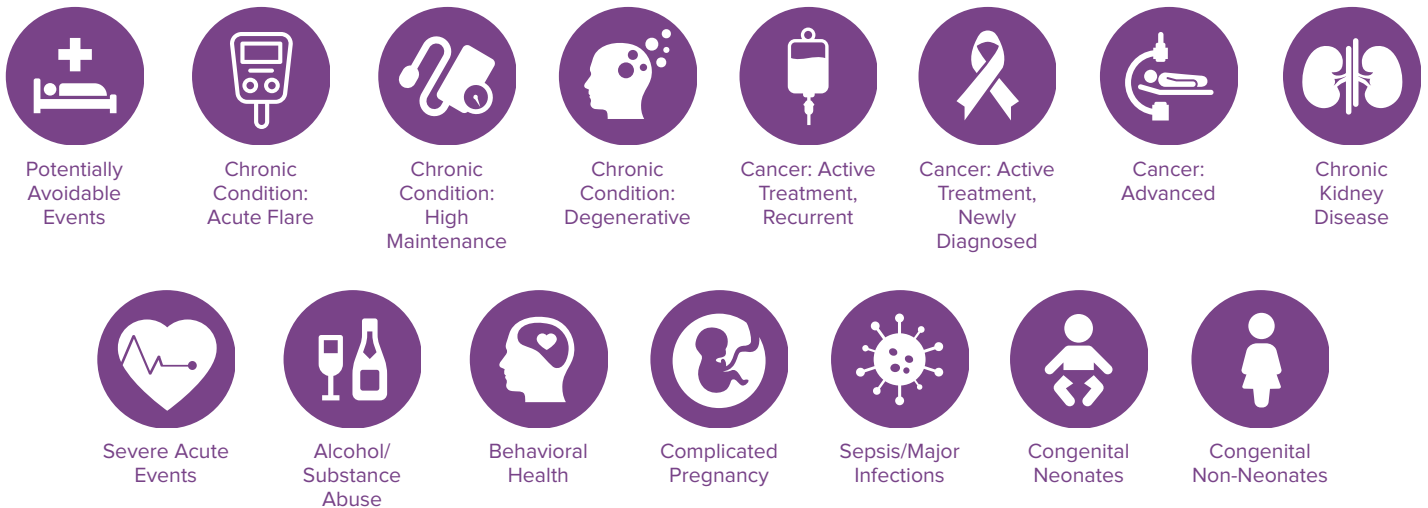
One area of hope for reducing HiCCs is that at any given moment, the majority of those on the path to high costs can be predicted and costs mitigated by intervening earlier to reduce avoidable adverse events and improve outcomes. Many of these individuals have conditions amenable to medications, lifestyle changes, and other interventions.

60% of HiCCs are emerging
Many can be predicted and mitigated

Top conditions
- Heart disease
- Cancers
- Neurologic conditions

40% of HiCCs are recurring
Many are on a trajectory to higher cost

Top conditions
- Blood disorders
- Metabolic diseases
- Chronic kidney/ESRD

Using 'personas' to identify and mitigate HiCCs earlier

Advanced analytics, machine learning, and artificial intelligence are critical to helping quickly identify and mitigate HiCCs. BHI has established an individual probability score for each member's potential for becoming high-cost, using its own risk identification and stratification approach. Members are assigned to one of 15 "prescriptive personas," reflecting distinct drivers of high cost and complex care.

BHI'S PRESCRIPTIVE PERSONAS FOR HiCCs

- Potentially Avoidable Events
- Chronic Condition: Acute Flare
- Chronic Condition: High Maintenance
- Chronic Condition: Degenerative
- Cancer: Active Treatment, Recurrent
- Cancer: Active Treatment, Newly Diagnosed
- Cancer: Advanced
- Chronic Kidney Disease

- Severe Acute Events
- Alcohol/ Substance Abuse
- Behavioral Health
- Complicated Pregnancy
- Sepsis/Major Infections
- Congenital Neonates
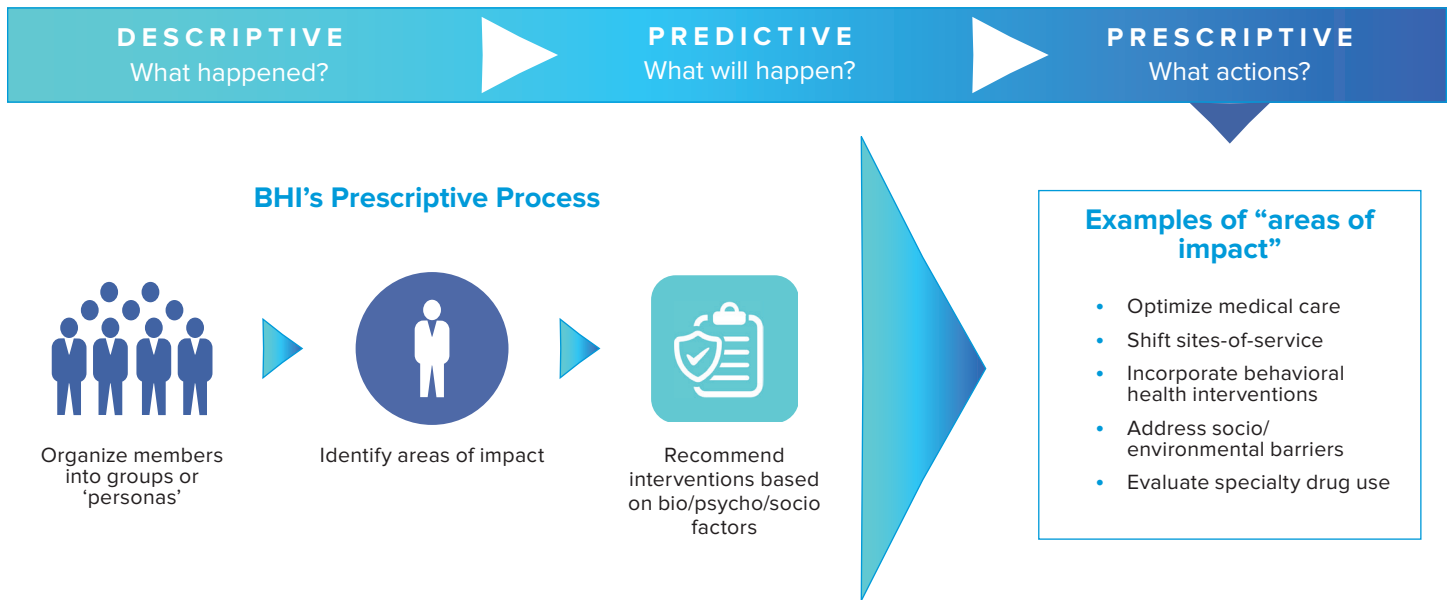- Congenital Non-Neonates

Factoring in socio/economic/behavioral data

Considering social determinants of health (SDoH) factors in HiCC risk stratification and identification modeling helps to create an understanding of an individual member's ability to manage his/her health. It also helps to inform the most appropriate interventions. BHI's predictive models take into account a broad range of socioeconomic and behavioral factors, including income, education, lack of vehicle access, social/family support, disabilities, alcohol and substance abuse, and behavioral health in order to provide the most comprehensive health profile for members.

Actionable analytics

BHI uses descriptive analytics based on data to provide the most accurate picture of the problem, predictive modeling to show how the situation will evolve over time, and prescriptive modeling to recommend interventions. These interventions are based on associations among members in groups and an evaluation of a member's medical situation, emotional state, and SDoH status.

DESCRIPTIVE What happened?	PREDICTIVE What will happen?	PRESCRIPTIVE What actions?

BHI's Prescriptive Process

Organize members into groups or 'personas'

Identify areas of impact

Recommend interventions based on bio/psycho/socio factors

Examples of "areas of impact"

- Optimize medical care
- Shift sites-of-service
- Incorporate behavioral health interventions
- Address socio/environmental barriers
- Evaluate specialty drug use

Where the highest costs lie

The rise of new treatments and technologies has proved effective, even miraculous, especially in cancer and cardiac care. These new interventions, however, can come at a tremendous and ongoing cost. Addressing this becomes a matter of chronic care management and a focus on the most cost-effective sites of care.

Most Expensive Conditions Among HiCCs in 2017

Condition	Allowed $
Malignant neoplasm therapy	$1,324,161,228
Chronic renal failure	$538,493,274
Sepsis	$479,378,251
Single liveborn (premature)	$265,228,768
Respiratory failure	$258,865,526
Congenital coagulation condition	$219,188,457
Malignant neoplasm of the breast	$214,157,920
Coronary artery disease	$211,190,816
Other endocrine conditions	$192,145,423
Heart failure	$186,494,863

Doing well by doing good

BHI's work shows that if healthcare stakeholders hope to better rein in costs of care, they need the right tools to identify existing HiCCs and predict others on the path to needing expensive care. This will allow them to overcome disparities in access and deliver appropriate interventions in the right setting, by the right provider. In the process, patients' health status should improve.

Are you doing everything you can to reduce costs and improve quality?

Visit bluehealthintelligence.com for more information on how you can leverage the power of more than 20 billion claims and our predictive analytics to make better healthcare decisions.