

The Use of Predictive Modeling in the Transformation of a Health Plan

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Some men see things as they are and ask, “Why?”

I Dream of things that never were and say, “Why Not?”

George Bernard Shaw

**Though frequently attributed to
RFK and later quoted by Edward M.
Kennedy in his eloquent eulogy to
his brother**

Background

Blue Cross & Blue Shield of Rhode Island is a determinedly independent local not for profit health plan that dominates the local market covering approximately 70% of the insured lives in our dominion.

Despite this position, we choose to view the current state as a burning platform and have embarked on a corporate transformation from a traditional transactional health insurance plan towards a “virtually” integrated health care company.

By way of background, I recall that though Rhode Island was the first colony to free itself from British Rule, it was the last to join the new republic of thirteen states and is aptly symbolized by the statue dedicated to the independent man atop the State Capitol.

Statement of Problem:

The cost of Health Care is not sustainable.

**Currently, at 16% of GDP, the trend exceeds that of
the economy as a whole.**

Absent a well thought out national public healthcare policy that addresses the economics of limited care resources, as has occurred in Europe, we are faced with the provocative concept of cost control.

Options: Simplify the process

Reduce Administrative Costs

If you pay a man to cut off your leg, he will.

George Bernard Shaw
An early insight into
the paradox of fee for
service medical practice

Reduce Unit Revenue Payment

Reduce Inefficiency and Increase Effectiveness

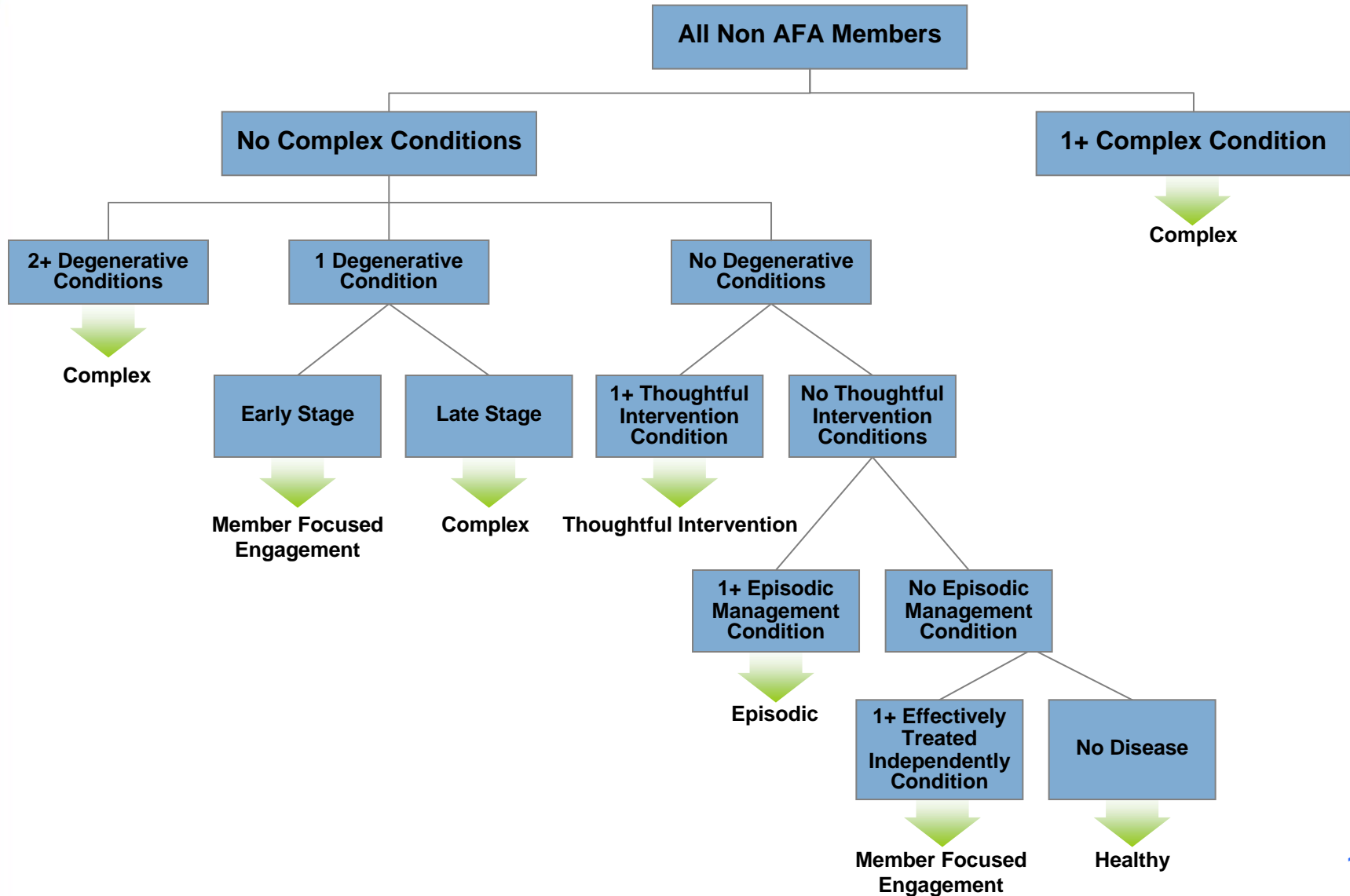
**Create Solution Shops in Primary Care =
Patient Centered Medical Home**

Generously reward the intuitive skill set of complex pattern recognition inherent in the care of the most challenging patients.

Develop a methodology to focus the work effort on those patients with chronic and complex conditions.

Patient Identification is accomplished by Population Segmentation and application of Predictive Modeling within the segments.

New Patient Grouping Logic



New Patient Grouping Logic (Disease Classification)

Member Focused Engagement

- Substantially impacted by treatment and behavioral modification

Degenerative and Can Introduce Complexity

- Asthma
- CAD
- CHF
- Chronic renal disease
- COPD
- Diabetes
- Liver cirrhosis

Effectively Treated Independently

- Benign prostate hypertrophy
- Celiac disease
- Chronic thyroid
- Esophageal reflux
- Morbid obesity
- Rheumatoid arthritis
- Sleep apnea

Watchful Waiting and Episodic Management

- Treated and maintained with Rx and episodically when they occur or flare up

Thoughtful Interventionism

- Back pain
- Carpal tunnel
- Cataracts
- Disc
- Hemochromatosis
- Osteoarthritis
- Varicose veins

Episodic Management

- | | |
|------------------------------|----------------------------|
| • Atrial fibrillation | • Polymyalgia rheumatica |
| • Chronic pancreatitis | • Primary cardiomyopathies |
| • Constipation | • Psoriasis |
| • Epilepsy | • Pulmonary heart disease |
| • Gout | • Retina disorders |
| • Hemorrhoids | • Rheumatic heart disease |
| • Inflammatory bowel disease | • Sick sinus syndrome |
| • Irritable bowel disease | • Stroke/TIA |
| • Migraine | • Valvular disorders |
| • Multiple sclerosis | |
| • Paralysis | |

Complex Patient Management

- Complex conditions requiring multiple coordinated interventions
 - Cancer
 - HIV/AIDS
 - Severe behavioral health
 - Severe depression or anxiety
 - Cystic fibrosis
 - Hematologic disorders

For Predictive Modeling we use the Hopkins' model that we have modified with decision trees and neural networks.

Actionable (or impactable) patients are then identified with a combination of a gaps in care analysis and a provider efficiency rating.

Our Goal of Improving the Health of our Members is measured with an aggregate population metric that we have called the member health index (MHI).

We ultimately reduce the unnecessary and duplicate diagnostic maneuvers and increase the quantity of recommended (EBM) interventions.

**Thank you to the organizing committee and to
my fabulous teams in Health Analytics and
Health Management Integration at Blue Cross**

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For Architect

The outside of a horse is good for the inside of a man.

Winston Churchill

**Though often attributed
to Mark Twain**