

# Medicaid Advanced Primary Care Program & PC AHEAD: Prediction Tools Webinar

March 17, 2026

# Agenda

- Overview of Prediction Tools
- Live Demonstration
- Pre-AH and Pre-DC Models

# Overview of Prediction Tools

- Risk scores are based on Hilltop's **Pre-AH** (Avoidable Hospitalizations) and **Pre-DC** (Diabetes Complications) Models
  - PC AHEAD & MDPCP participating practices can view risk scores for their attributed beneficiaries in the MDPCP / PC AHEAD Reporting Suite
  - Medicaid Advanced Primary Care Program participating practices can view risk scores for their panels in the Multi-Payer Reporting Suite
- Beneficiary-level report with conditional formatting for easy identification of high-risk beneficiaries
- Users can view beneficiary-specific attributes that contribute to their risk score

# Prediction Tools Report

*MDPCP / PC AHEAD Reporting Suite*

*Multi-Payer Reporting Suite*

**Reports**

- ▼ Access and Continuity
  - Population Summary
  - Demographics
- ▼ Care Management
  - Prediction Tools**
  - Inpatient / ER Utilization
  - Medication Synchronization Opportunity Sum...
  - High-Risk Medications - Top 100 Prescribers
  - Payment Band
  - PQI-Like Utilization Reports
  - Chronic Condition Report
- ▼ Comprehensiveness and Coordination
  - Specialist and Ancillary Services Report
  - Health Equity by Demographics Report
  - PMPM Trend

**Reports**

- ▼ Population Summary
  - Population Navigator
  - Measure Comparison by Time Period
  - Acute Care Setting Utilization Report
  - Emergency Room Utilization Report
  - Plan All Cause Readmission (PCR) Report
  - PQI Utilization Report
  - Follow Up After Inpatient Discharge Report
  - PMPM Trend Report
  - Health Equity by Demographics Report
  - Maternal Health Utilization Reports
  - Redetermination Report
- Prediction Tools**
- Quality Measure Dashboard



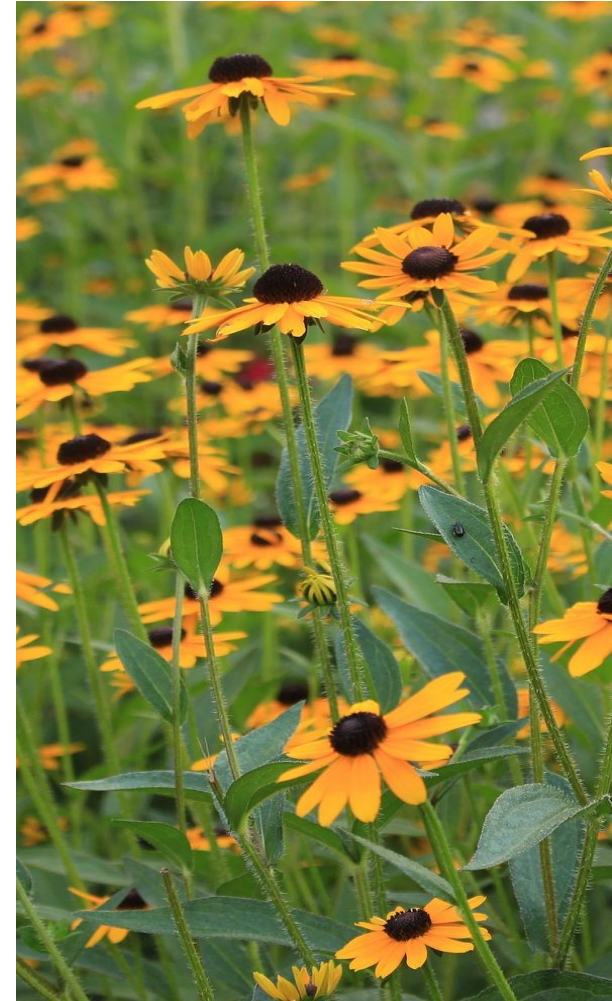
# DEMONSTRATION



**The Hilltop Institute**

# Multi-Payer Prediction Tools Overview

CRISP Webinar  
March 17, 2026



**UMBC**

# Prediction tools updated monthly for 2 million Marylanders

## MDPCP


350,000 Medicare FFS Beneficiaries

## HealthChoice


1.2 Million Medicaid Managed Care Beneficiaries

## Multipayer Dashboard


All MD Full-Benefit Medicare FFS + Medicaid Beneficiaries



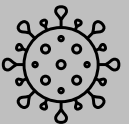
**Pre-AH**  
Avoidable Hospital Events  
All Medicare + All Medicaid



**Pre-DC**  
Severe Diabetes Complications  
All Medicare + All Medicaid

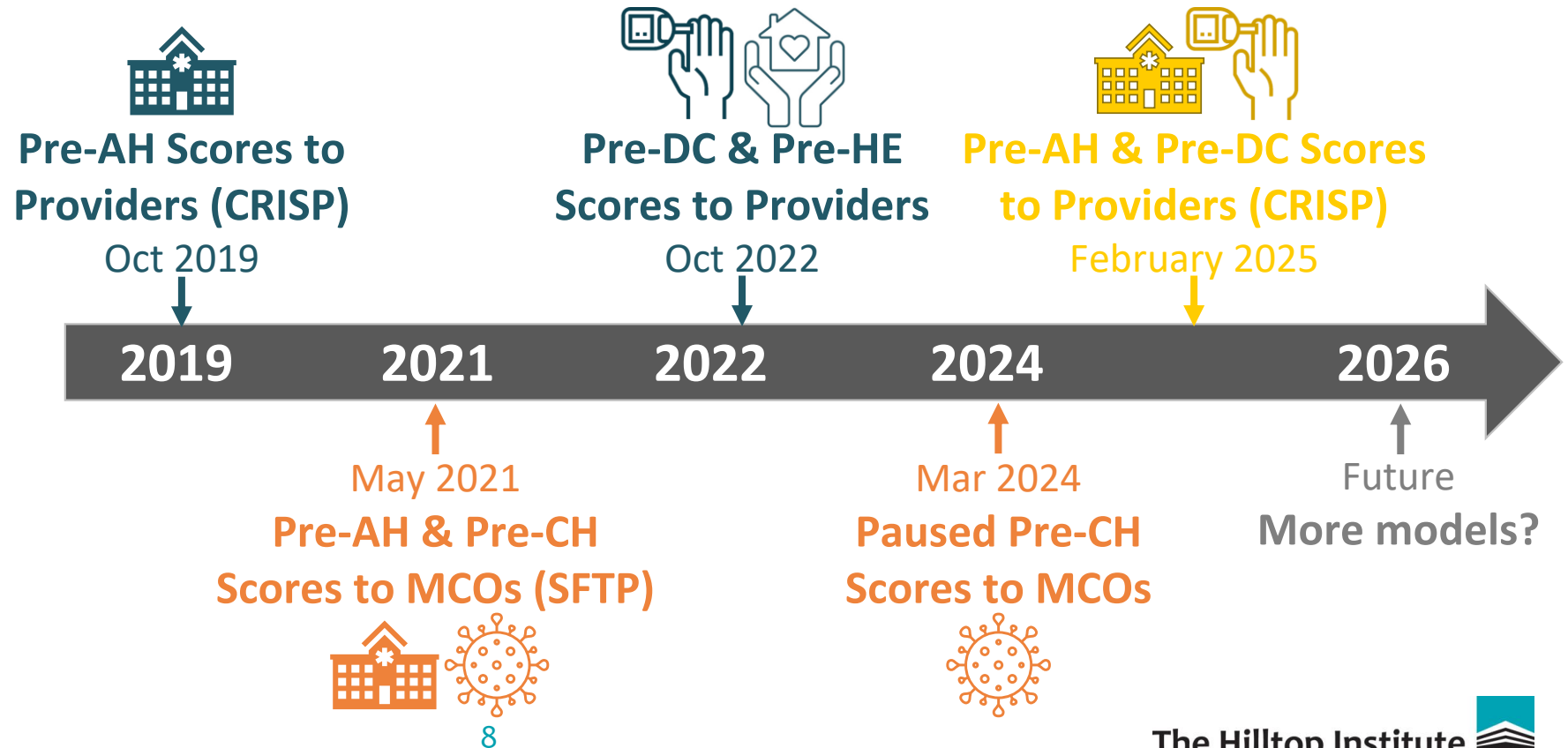


**Pre-HE**  
Hospice Eligibility/Mortality  
AHEAD MDPCP Medicare only



**Pre-CH**  
COVID-19 Hospital Events  
Medicaid HealthChoice only

*Decommissioned in 2024*



Prediction  
Tools in the  
Multi-Payer  
Reporting  
Suite

**Pre-AH**



**Avoidable  
Hospitalizations**

**Pre-DC**



**Type-2 Diabetes  
Complications**

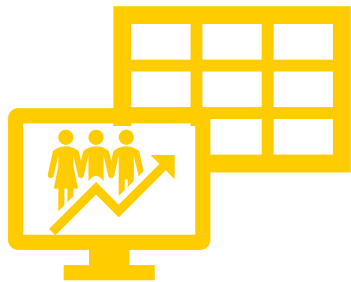
# Model Development Process



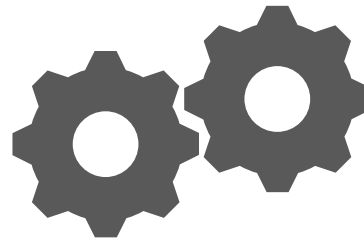
Literature Review



Stakeholder Feedback



Data Processing +  
Analytic Pipeline



Regular Model  
Training + Scoring



Actionable Output  
Clear Documentation

# Prediction Tool Data Sources

## Administrative Claims Data

|                      |                         |
|----------------------|-------------------------|
| Beneficiary Demos    | Pharmacy Claims         |
| Institutional Claims | DME Claims              |
| Professional Claims  | Special Services Claims |

+

## Neighborhood-Level SDOH Data

*Publicly Available*

Ex: American Community Survey, Area Deprivation Index, Area Health Resources File

# Risk Factor Categories



# Development Overview: Training & Scoring

Quarterly, models are *trained* on 24 months of data

- Establish relationships between each risk factor and the outcome (coefficients)
- Discrete time survival model

Each month, models are *scored* using the latest coefficients

- Performance monitoring

Table 15. Pre-AH MA-MCO Risk Model Odds Ratios for Model 1

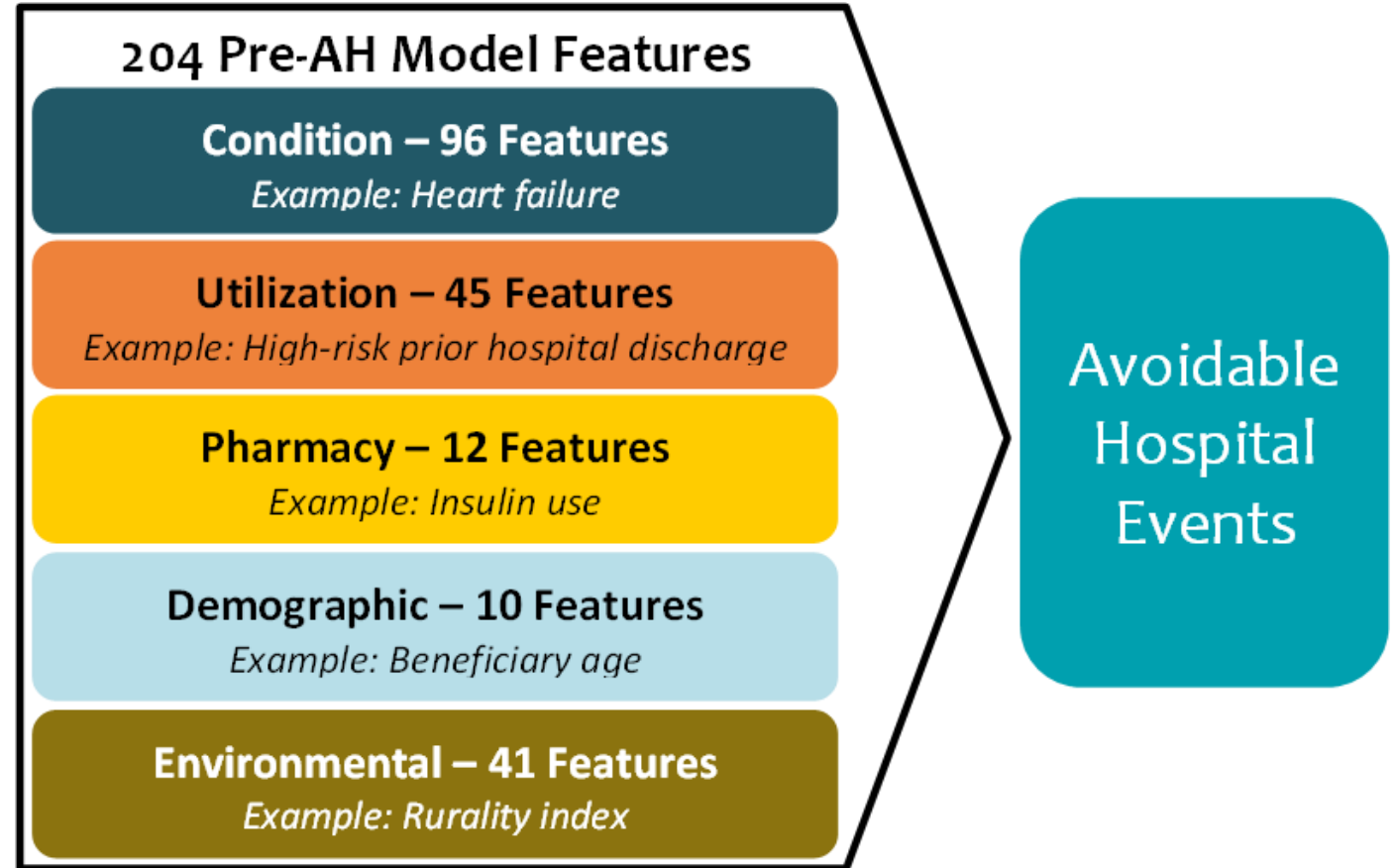
| Risk Factor  | Odds Ratio |
|--|------------|
| CCW indicator for asthma                                       | 2.712      |
| Indicator for insulin use                                      | 1.792      |
| CCW indicator for diabetes                                     | 1.628      |
| Number of avoidable hospitalizations                           | 1.538      |
| Indicator for urinary tract infection                          | 1.536      |
| Indicator for oral corticosteroid use                          | 1.471      |
| CCW indicator for pressure and chronic ulcers                  | 1.458      |
| Indicator for diabetes with complications                      | 1.42       |
| CCW indicator for heart failure and non-ischemic heart disease | 1.401      |

Table 27. Pre-DC MA-MCO Risk Model Odds Ratios for Model 1

| Risk Factor   | Odds Ratio |
|---|------------|
| CCW indicator for sensory (blindness and visual) impairment                         | 2.36       |
| CCW indicator for heart failure and non-ischemic heart disease                      | 2.18       |
| Indicator for sickle cell anemia  | 2.142      |
| Prior hospitalization discharge status - transferred to inpatient care              | 2.012      |
| Prior hospitalization discharge status - other                                      | 1.984      |
| DCSI Score – Cardiovascular   | 1.837      |
| Chronic Renal Insufficiency/ESRD  | 1.837      |
| CCW indicator for spina bifida and other congenital anomalies of the nervous system | 1.833      |

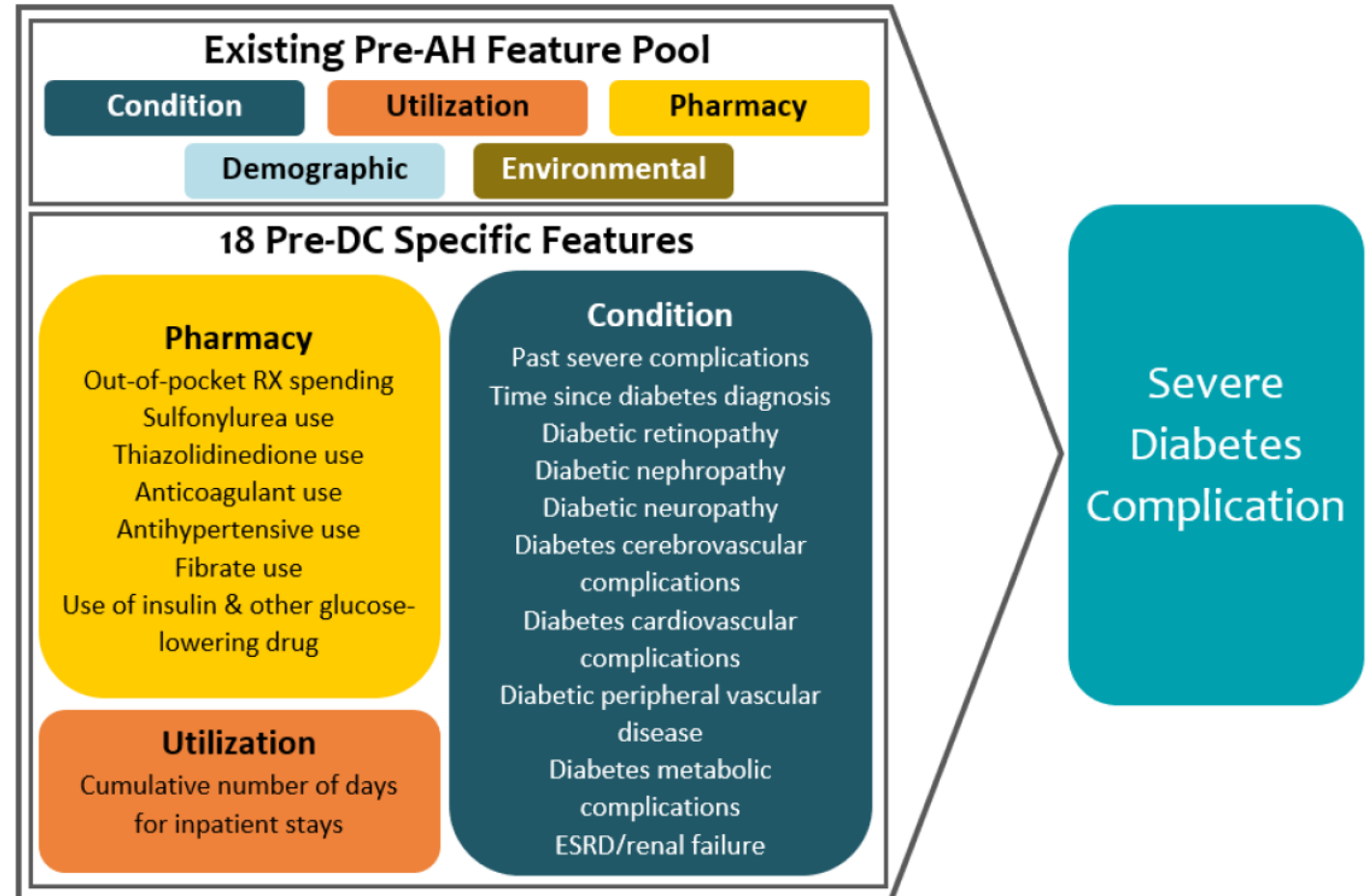
# Pre-AH Model Overview

- Predicts inpatient admissions or ED visits for preventable hospital events in the next month
- “Preventable” is a composite of 10 PQI\* conditions (AHRQ)



# Pre-DC Model Overview

- Predicts inpatient admissions or ED visits for severe type 2 diabetes complications in the next month
  - Based on DCSI\*
- Scores created for **all beneficiaries**, not limited to those with diabetes



\*Diabetes Complications Severity Index

# Multi-Payer Population Characteristics

| Medicare FFS            |   | Maryland Medicaid  |                      |
|-------------------------|---|--|----------------------|
| <b>MDPCP</b><br>334,641 | <b>FFS</b><br>403,442<br><i>PC AHEAD: 9,434</i> | <b>HealthChoice</b><br>1,266,276<br><i>Medicaid PCP: 780,601</i> | <b>FFS</b><br>39,515 |

| Feature            | MC MD PCP  | MC MD FFS   | MA MD MCO   | MA MD FFS   |
|--------------------|------------|-------------|-------------|-------------|
| <b>Age (years)</b> | 74.2 (9.5) | 73.2 (11.3) | 23.0 (17.0) | 43.8 (24.9) |
| <b>% White</b>     | 74.2%      | 59.9%       | 23.5%       | 23.5%       |
| <b>% Black</b>     | 17.3%      | 24.2%       | 45.5%       | 53.9%       |
| <b>% Female</b>    | 59.6%      | 54.7%       | 54.2%       | 42.7%       |
| <b>Pre-AH</b>      | .0043      | .0049       | .0025       | .0057       |
| <b>Pre-DC</b>      | .0128      | .0145       | .0015       | .0097       |

Strong  
Predictive  
Performance  
across  
Populations

Percentage of outcome events incurred by patients with the top 10% of risk scores

| <b>Population</b> | <b>Pre-AH</b><br><i>Training (Production)</i> | <b>Pre-DC</b><br><i>Training (Production)</i> |
|-------------------|---|---|
| MDPCP             | 53% (48%)                                     | 64% (56%)                                     |
| Medicare FFS      | 52% (50%)                                     | 63% (60%)                                     |
| HealthChoice      | 55% (56%)                                     | 82% (83%)                                     |
| Medicaid FFS      | 56% (53%)                                     | 72% (70%)                                     |

## Who will NOT have risk scores?

- Patients with commercial or VA insurance
- Medicare advantage
- Medicare partial benefit (e.g., Part A only)
- Medicaid partial benefit (e.g., family planning/reproductive health only)

# Prediction Tool Strengths: How Can These Scores Help You?

## Focused Outcome:

Optimized for a  
Specific Event



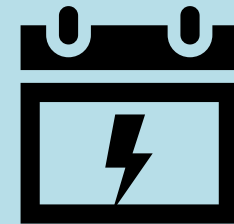
## Tested & Trusted:

Record of Quality  
Performance



## Timely:

Recent Claims History  
& Updated Monthly



## Global Relevance:

Associated with  
Broader Risk



## Apples to Apples:

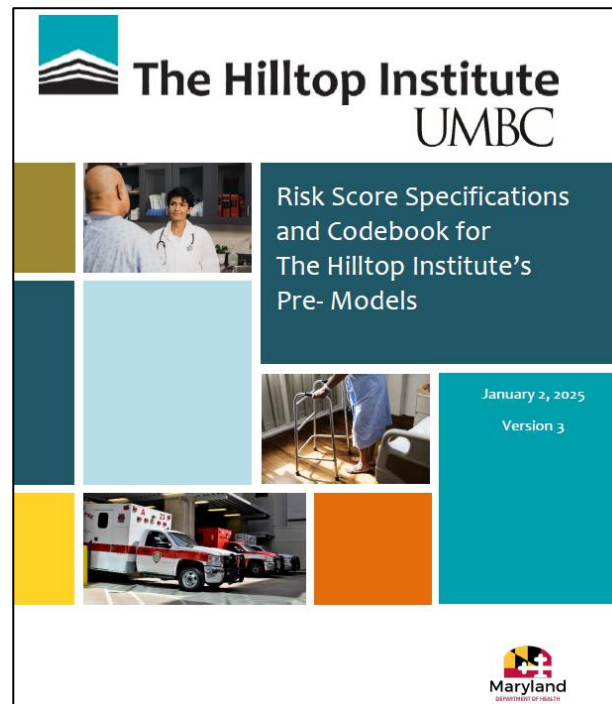
Compare across  
Practices, Populations



High ← Event Risk → Low

Where to Go  
for More  
Information

More information on the tool, including a full list of risk factors, is available in the **Multi-Payer Reporting Suite “Help” tab**



Hilltop's Pre- Models  
Specifications  
and Codebook



# About Hilltop

The Hilltop Institute is a nonpartisan research organization at the University of Maryland, Baltimore County (UMBC) dedicated to improving the health and wellbeing of people and communities. We conduct cutting-edge data analytics and translational research on behalf of government agencies, foundations, and nonprofit organizations to inform public policy at the national, state, and local levels.

[www.hilltopinstitute.org](http://www.hilltopinstitute.org)