




PMSA







PHARMACEUTICAL MANAGEMENT
SCIENCE ASSOCIATION

Precision Targeting for Maximizing Pull-Through by Identification of High Propensity Targets

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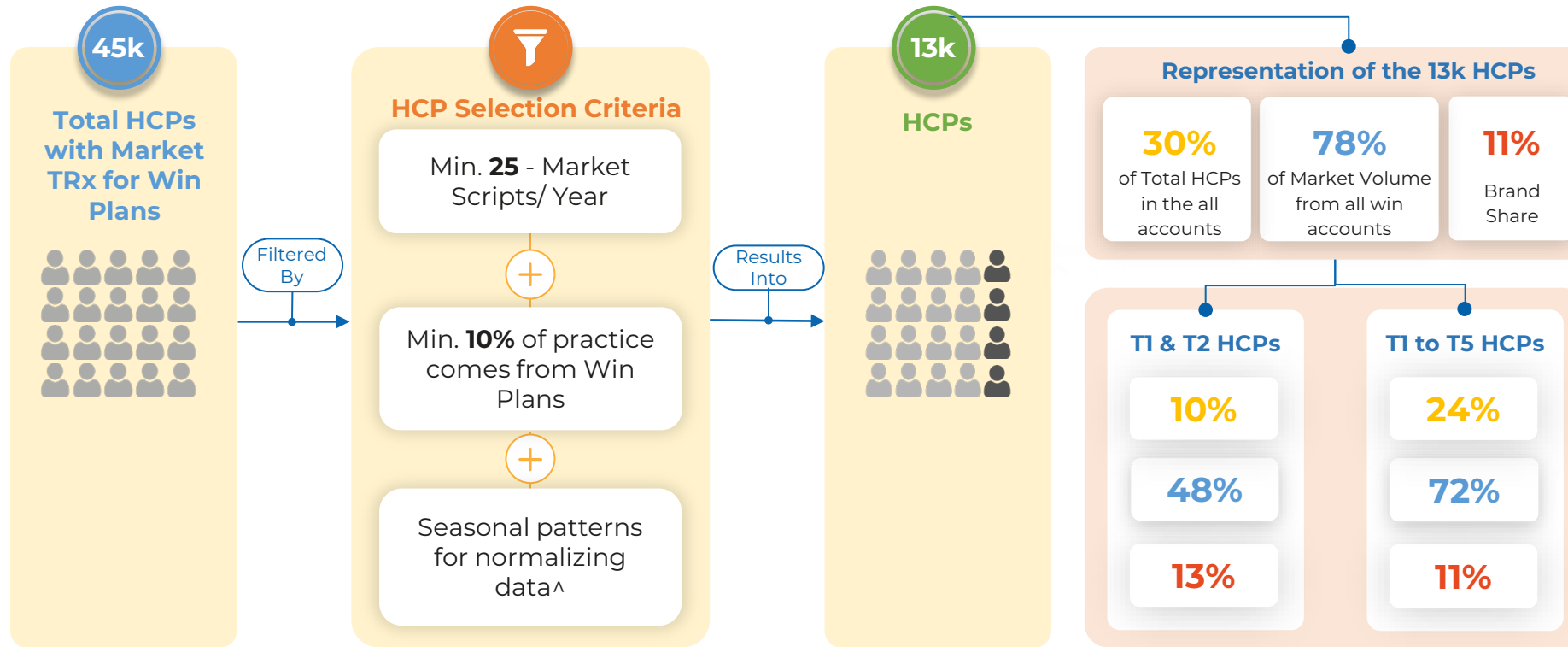
Agenda

-  Traditional Pull-Through Targeting
-  Pitfalls for Traditional PT Targeting
-  Solution Framework
-  ML Modeling Approach
-  Business Outcomes
-  Additional applications of this modeling approach

Traditional Pull-Through Targeting

Conventional Analytics

Opportunity Assessment to identify important Win Targets



Pitfalls of Traditional Pull-Through Targeting

- Limited focus on identifying key business drivers during assessment of the market opportunity
- Lack of alignment between short- and long-term goals for the brand
- Tactics and activities are typically focused on achieving short-term sales goals
- Often implemented in isolation from other marketing efforts which can lead to a fragmented and ineffective approach to marketing the product
- Typically focused on plan specific targeted physicians, neglecting other high opportunity customers

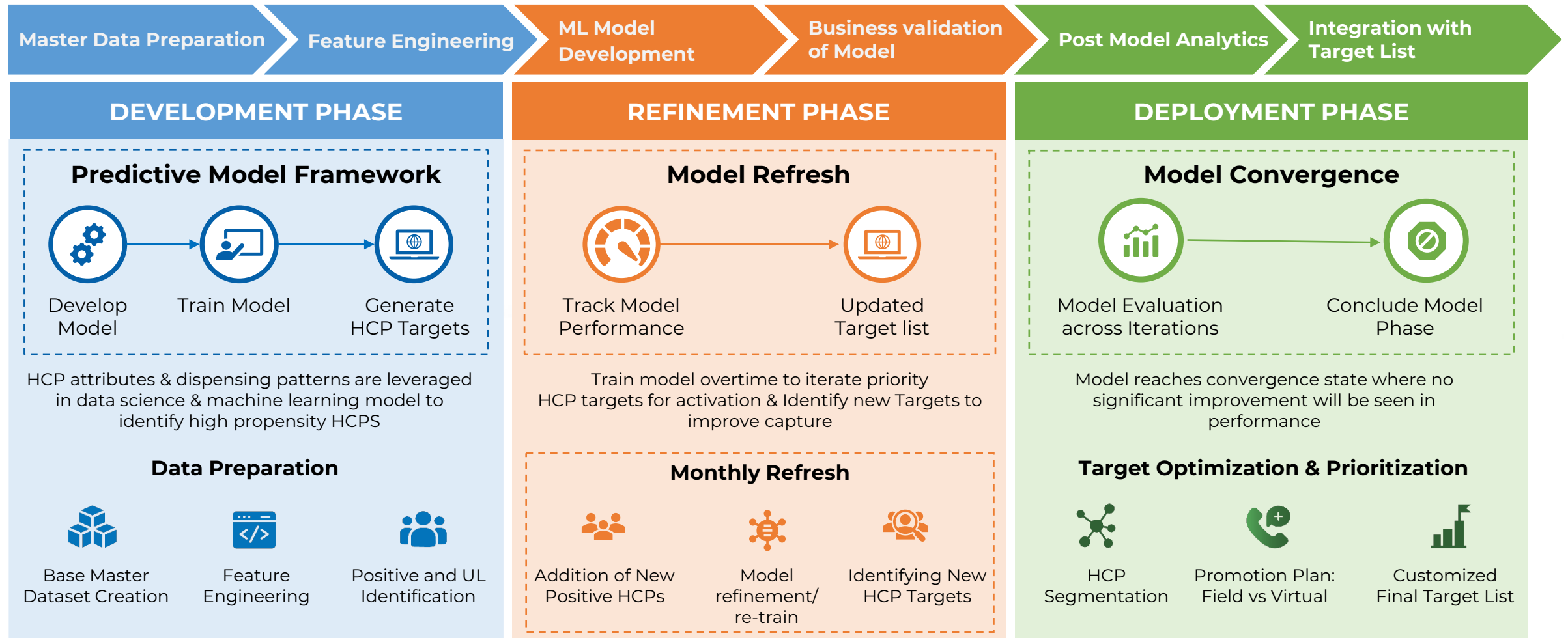
Objective – Identify WHO will write NBRx post win.



A large pharma client was going through a pivotal Managed Care win. Engaged CustomerInsights.AI to create a high precision relevant target list of HCPs through machine learning, to increase activation rates and market share

- Identification of new writers by considering NBRx Activated HCPs as positives and Non-Activated HCPs as Unlabeled based on a semi-supervised ML technique
- Key drivers influencing the New NBRx writers will be studied based on an event-driven modelling approach (event is HCP writer NBRx post win)
- Profiling predicted writers based on pre & post win writing behavior, promotional activity (call plan) and demographics using an ML based unsupervised clustering analysis
- Deployment of the framework perform monthly model refinements and track performance

Solution Framework



Master Dataset Overview



Brand Equity Features

- Xiidra Win & Non-win TRx, NBRx volume
- NBRx, TRx Volume Decile
- Market Volume Decile Buckets
- Percent of business from Individual win accounts

57 Features: Win & Non-Win Volume based Brand and Market information.

13 Features: Historical calls, samples & PTO download information



Promotions

- Calls
- Med D Calls
- PTO
- Samples



Market Access

- Pre & Post CAR Score
- AGM Index
- AGM Buckets

6 Features: Pre & Post win event access score and growth index

64 Features: % of Win and Non-Win business by Payment mix



Payment Mix

TRx & NBRx features:

- Medicare Win/Non-Win
- Commercial
- Medicaid
- Percent of Business by Payment mix

Brand Equity

Promotions

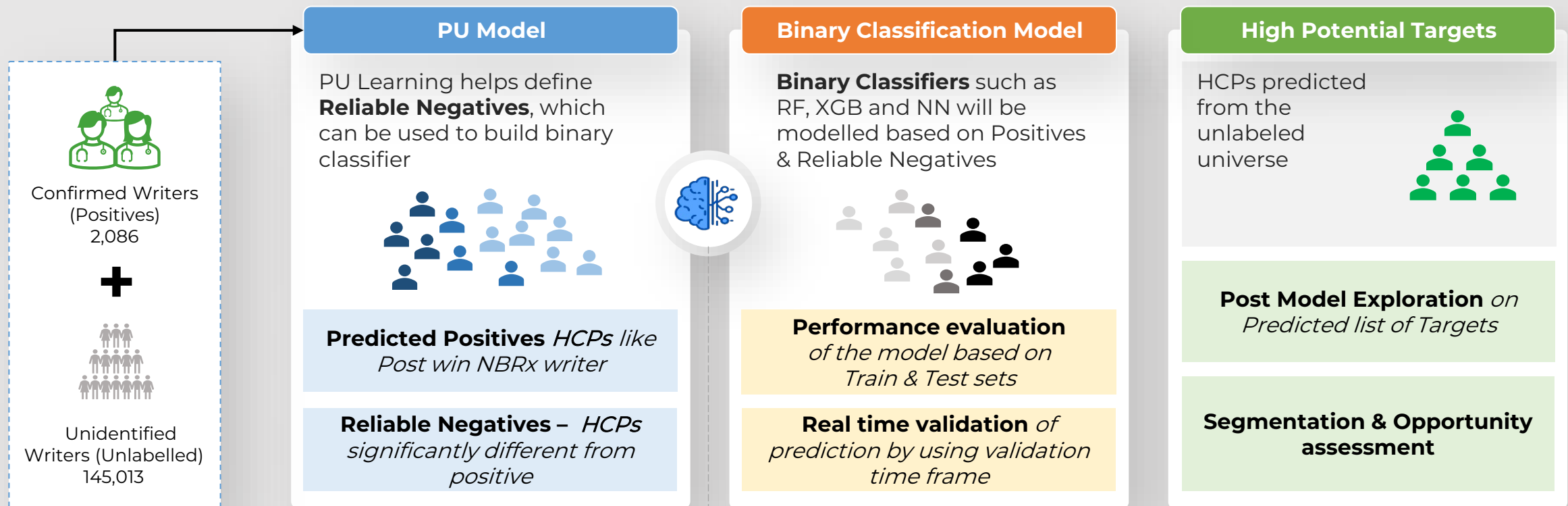
MASTER

Market Access

Payment Mix

Two-step modelling approach

A combination of one-class and binary class ML Algorithms



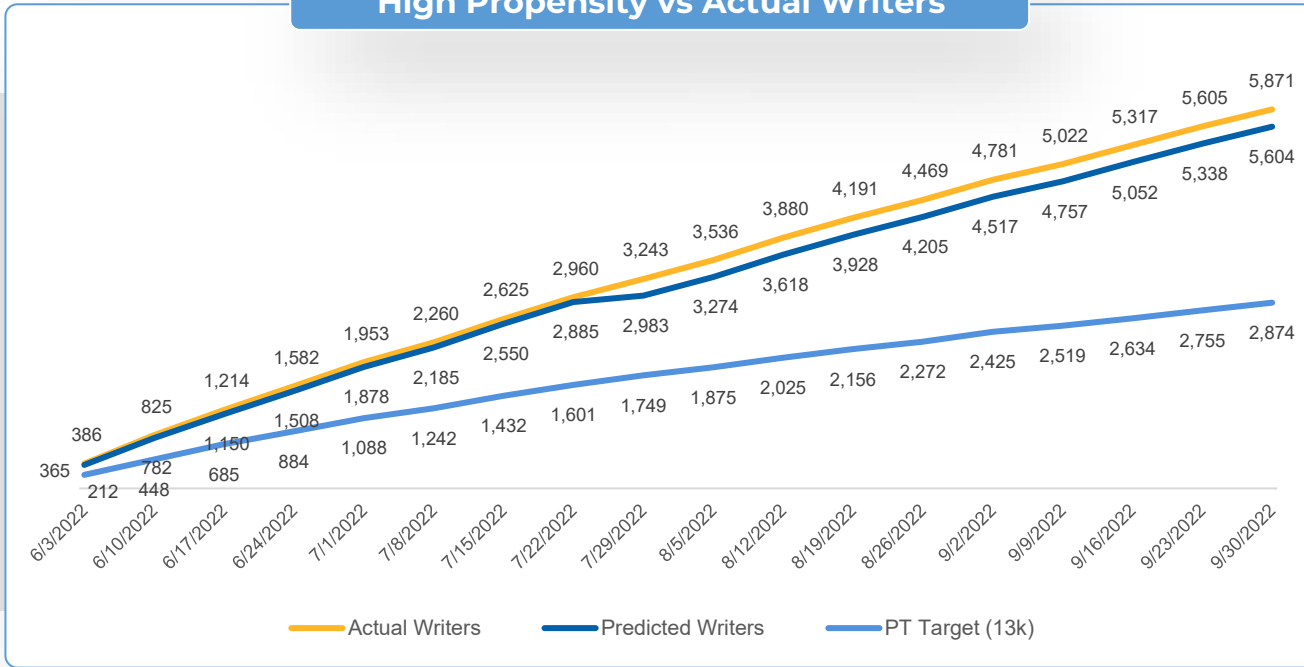
Model results across iterations

| | Data Configuration in Models | | | | Binary Model Performance | | |
|---------|------------------------------|-----------|-----------|--------------------|--------------------------|-----------|--------|
| | Predicted HCPs | Positives | Unlabeled | Reliable Negatives | F1 Score | Precision | Recall |
| Model 1 | 4,876 | 2,086 | 145,013 | 106,013 | 46.88% | 99.98% | 30.61% |
| Model 2 | 845 | 3,997 | 143,395 | 102,815 | 71.34% | 99.91% | 55.48% |
| Model 3 | 760 | 5,250 | 142,779 | 101,695 | 79.91% | 99.94% | 66.57% |
| Model 4 | 272 | 6,434 | 141,727 | 109,127 | 85.91% | 99.98% | 75.30% |

Model Tuning Objective: Precision was the primary performance metric in focus during the hyper parameter tuning process of the models.

Model Iteration results (Post Deployment)

High Propensity vs Actual Writers



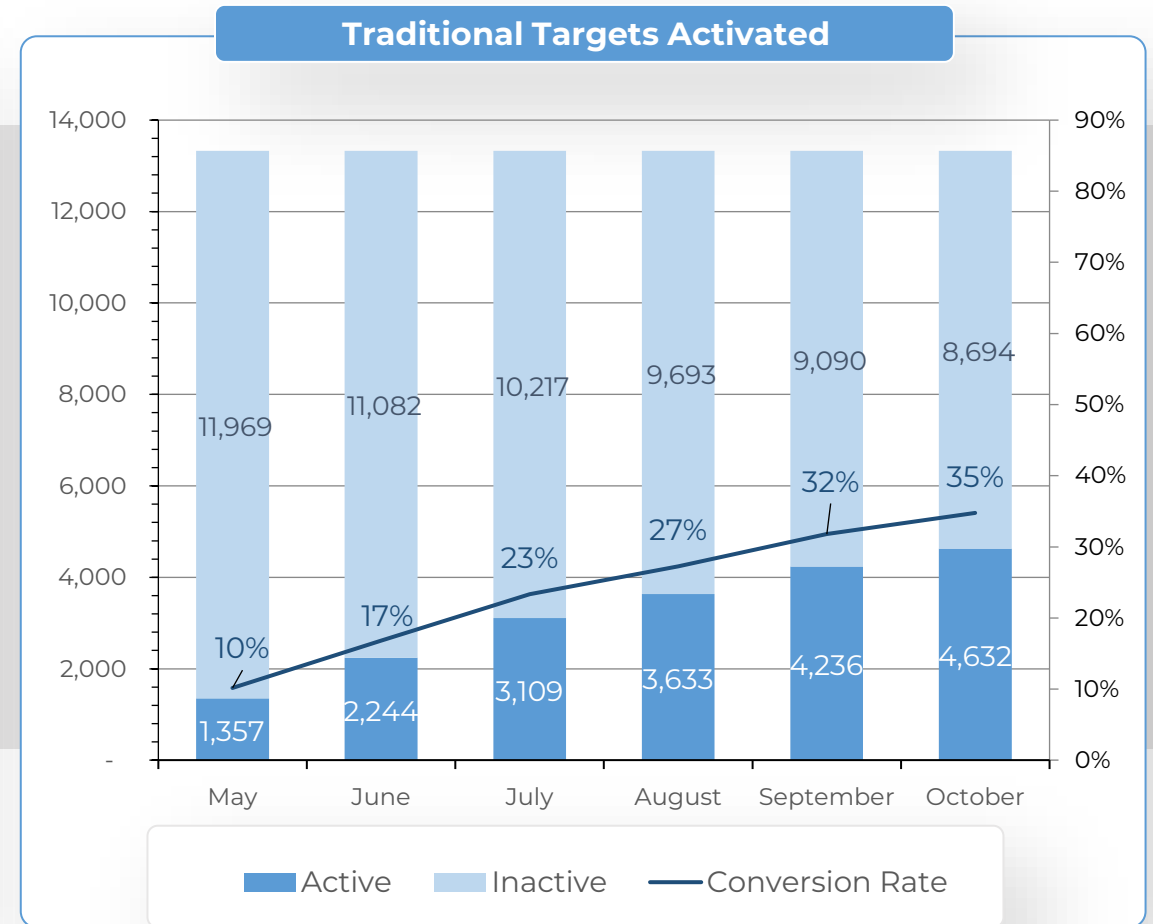
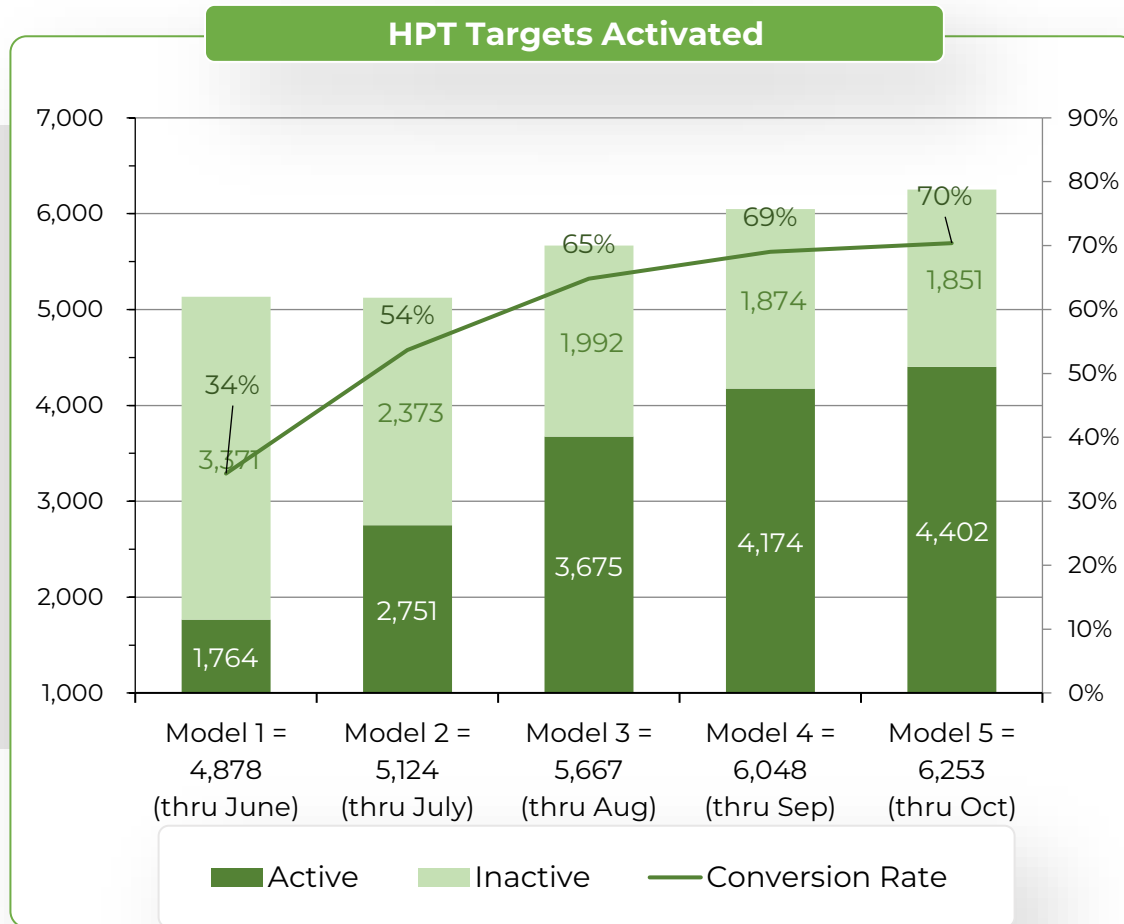
- ✓ High Propensity (HP) methodology is designed to identify early writers real-time.
- ✓ 95% of cumulative HP writers matched actual writers.
- ✓ 76% of cumulative HP writers matched within subsequent 4-weeks (monthly update).

High Propensity Writer Capture Rate

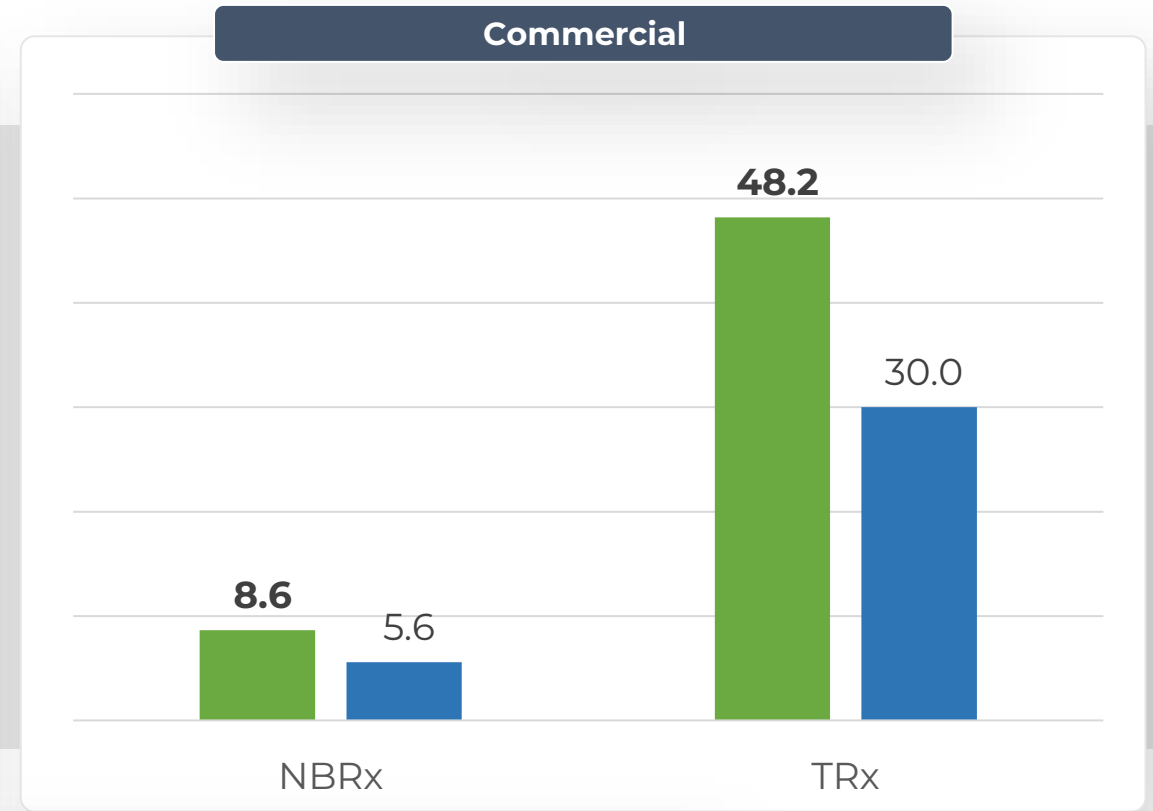
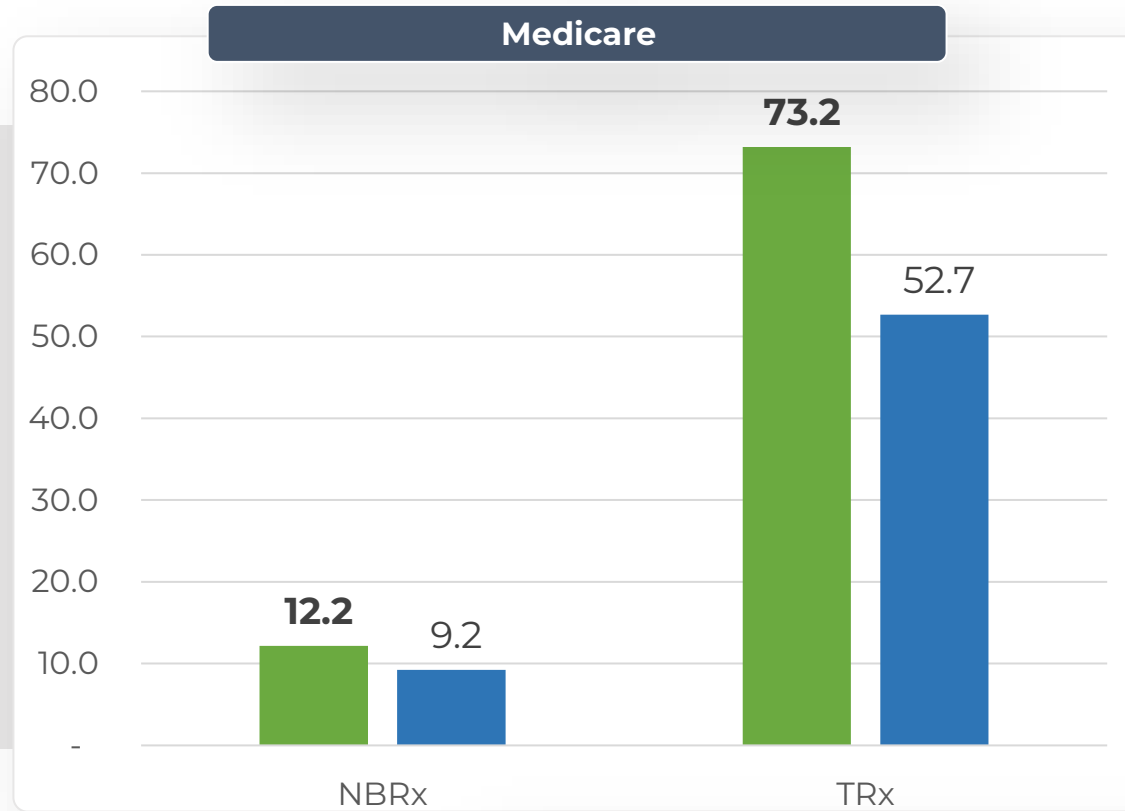
| Week | Total Writers | Total PNW Writers | M1 (Jun'22) | M2 (Jul'22) | M3 (Aug'22) | M4 (Sep'22) | M1-4 Capture |
|--------------|---------------|-------------------|--------------|--------------|-------------|-------------|--------------|
| 6/3/2022 | 386 | 365 | 95% | | | | 94.6% |
| 6/10/2022 | 439 | 417 | 95% | | | | 95.0% |
| 6/17/2022 | 389 | 368 | 95% | | | | 94.6% |
| 6/24/2022 | 368 | 358 | 97% | | | | 97.3% |
| 7/1/2022 | 371 | 370 | 69% | 30% | | | 99.7% |
| 7/8/2022 | 307 | 307 | | 71% | | | 100.0% |
| 7/15/2022 | 365 | 365 | | 75% | | | 100.0% |
| 7/22/2022 | 335 | 335 | | 76% | | | 100.0% |
| 7/29/2022 | 283 | 98 | | 7% | | | 34.6% |
| 8/5/2022 | 293 | 291 | | | 73% | | 99.3% |
| 8/12/2022 | 344 | 344 | | | 66% | | 100.0% |
| 8/19/2022 | 311 | 310 | | | 72% | | 99.7% |
| 8/26/2022 | 278 | 277 | | | 65% | | 99.6% |
| 9/2/2022 | 312 | 312 | | | | 64% | 100.0% |
| 9/9/2022 | 241 | 240 | | | | 69% | 99.6% |
| 9/16/2022 | 295 | 295 | | | | 71% | 100.0% |
| 9/23/2022 | 288 | 286 | | | | 75% | 99.3% |
| 9/30/2022 | 266 | 266 | | | | 74% | 100.0% |
| Total | 5,871 | 5,604 | 2,665 | 1,086 | 865 | 987 | 95.5% |

| Total Predicted HCPs | Total Predicted Writers | % Conversion | % Capture |
|----------------------|-------------------------|--------------|-----------|
| 6,753 | 5,604 | 82.9% | 95.5% |

Resulted in much higher activation of targeted writers with relevant access content



Leading to high share vs. traditional methods



■ < Call Plan HPT (1,210)
ML precision targeting w/ access messaging

■ PTTs (5,028)
Pull Through Targets (traditional)

Additional Applications of similar modeling approach



Finding the right patients

We have applied similar approach to identify potential patients who are likely to start a particular therapy based on their Diagnosis, Procedure and Rx history



Expanding it to Formulary Loss

The same framework was later applied to multiple contracting events including one to curtail the potential downside following a loss of favorable access



Predicting new Writers

Not just for formulary win/loss scenarios, lookalike modelling approach is also quite useful for predictive/dynamic targeting for identifying New writers



Identifying Specialist-like Physicians

Similar approach was considered to identify pool of similar specialist like-physicians which further increased the Target universe

THANK YOU