

To measure the improvement in health outcomes, biopharma is continually pushing the envelope to better understand how their patient support programs are impacting patient adherence. While leading indicators like program engagement, satisfaction and survey feedback are helpful predictors of performance, the ability to retroactively measure programs leveraging Rx/medical claims data and test versus control methodologies provides the most direct way to assess impact on patient outcomes.

### APPROACH TO MEASUREMENT



**STEP 1** Determine the patient outcome metrics being analyzed and the research team that will be conducting the study.

**STEP 2** Align on the measurement approach, including time periods, matching process and patient eligibility criteria.

**STEP 3** Solution provider sends list of patients that have enrolled in the program (*test group*) to the research team.

**STEP 4** Research team deidentifies patient data and conducts the matching process to develop the control group for the study.

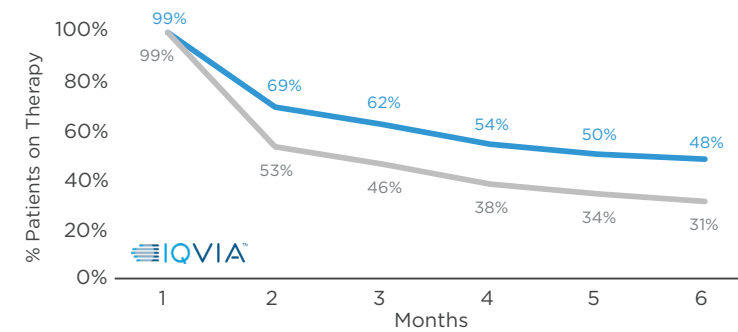
**STEP 5** Longitudinal persistency data is used to understand adherence rate differences of the test and control groups.

### INDUSTRY BEST PRACTICES

- Partner with a 3rd party research firm like Crossix or IQVIA, or conduct internally.
- Utilize test vs. control groups to remove the influence of any non-program related factors on the results.
- Match test and control group randomly on a 1:1 basis, without using control patients more than once.
- Look at both the data for the length of the program and for the months following to get a complete understanding of the impact.
- Measure persistency, compliance, days on therapy, days of supply and reduction in 1st prescription abandonment.
- Incorporate segmentation to understand performance across different groups and make data more actionable.
- Use only raw prescription data, not projected, to remove any potential bias.
- Leverage Analysis of Covariance (ANCOVA) to assess the statistical significance of the result.

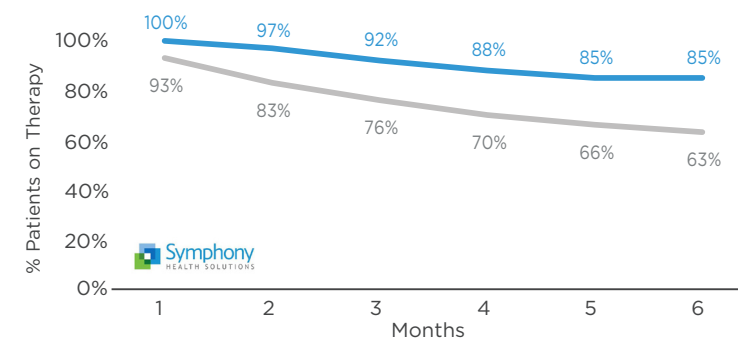
### HEALTH OUTCOME STUDIES FROM VMS CLINICAL NURSE EDUCATOR PROGRAMS

— Test Patients (VMS Program)  
— Control Patients



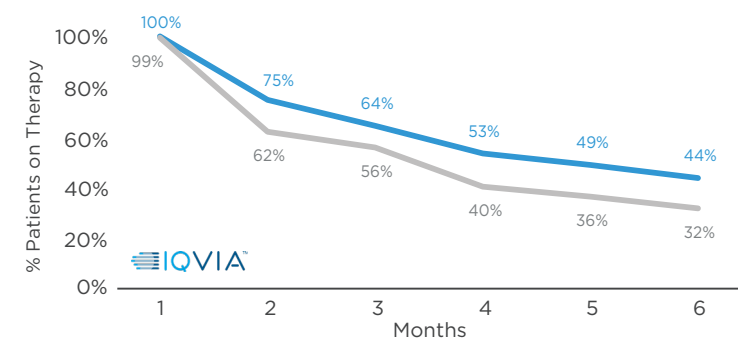
**Immediate Impact:**  
**30% INCREASE**  
in persistency at 2 months

**Sustained Impact:**  
**52% INCREASE**  
in persistency at 6 months



**Immediate Impact:**  
**17% INCREASE**  
in persistency at 2 months

**Sustained Impact:**  
**35% INCREASE**  
in persistency at 6 months



**Immediate Impact:**  
**21% INCREASE**  
in persistency at 2 months

**Sustained Impact:**  
**38% INCREASE**  
in persistency at 6 months