



# Demystifying Adherence Measurement

## A Primer for Marketers

Brand managers often find patient adherence measurement elusive. To ensure a complete understanding of patient behavior, they must take three steps. The author discusses these three steps, as well as their ways of being measured.

By David Bernard

Brand managers often find adherence measurement elusive. And why shouldn't they? The concept of measuring adherence can be vague – how does adherence measurement differ from measuring, say, persistence? How does compliance relate to adherence? How can you be confident in the accuracy of your measures given that there is not one standard of measurement in the industry? After all, most marketers don't even measure adherence the same way as their own vendors.

But, the good news is that there is a way to measure adherence accurately. Even better, you'll find out how as you read on.

### Striving to understand patient adherence

Most marketers are familiar with at least some of the measures used to describe patient adherence, but often

this knowledge is incomplete, not granular or too limited in focus. To ensure a complete understanding of patient behavior, marketers must take three steps:

1. Develop a full set of core adherence measures. Some marketers limit their view of patient behavior to understanding persistence – the degree to which patients remain on therapy over time. Yet persistence is of such limited scope that conclusions made without other dimensions of adherence, including compliance and length of therapy, can be misdirected.
2. Understand the details. Review the methodologies that drive the adherence measurement practices that are deployed.
3. Track patient adherence both on a market level and a program level. Many marketers focus their adherence measurement efforts predominantly on direct program

performance, for example how has a program driven improved adherence over control. While this is important, marketers must also measure adherence for patients within their entire market (including both patients within their CRM programs, as well as those who are not) over time and against the competition.

### The good, the bad and the ugly

So what makes up a complete view of patient adherence? There are three basic measures: persistence, compliance and length of therapy.

#### 1. Persistence

Persistence is the most commonly used adherence measure. And, as mentioned previously, it is often the only adherence measure actively used by marketers.

##### *Definition*

Persistence is the degree to which patients remain on therapy from the start of therapy without a meaningful interruption. When a patient is persistent, they have continually met a high standard of behavior. Persistence is expressed as a percentage of patients remaining on therapy at a given point of time and is most often represented graphically (“a persistence curve”). Persistence analysis employs the following givens:

- Start of Therapy is determined using a look-back period, during which time no prescriptions for the product in question can be observed for this patient. Thus, the patient can be qualified as “new” to the product or drug class. Depending on the analysis, start of therapy can be defined on a product level (no experience with this specific product during the look-back period), molecule level (no experience with this product or products with a similar method of action or drug class during the look-back period) or market level (no experience with any products in the market during the look back period).
- Cohorts are groups of patients with similar start dates used to simplify the measurement of adherence over large populations. Examples of cohorts include all patients starting therapy in a given month, or in a given quarter, or in other accepted timeframes.
- A Grace Period is the threshold used to determine if an interruption in therapy causes a patient to be considered non-persistent. If a patient finishes a 30-day supply, but then refills after waiting 40 days, the designation of whether that patient is considered persistent depends on the length of the grace period. When a patient gaps beyond the grace period that is defined, that patient is considered non-persistent and is not counted beyond this point as part of those who are continuing to be persistent within the cohort.

To illustrate:



The graphic above represents the longitudinal behavior for a single patient. In this example, the patient filled four times, but gapped for over 30 days between the second and third fill. When analyzing the persistence of this patient using a grace period of 30 days, the third and fourth fills of this patient are ignored.

##### *Challenges*

While persistence appears to be a straightforward adherence measure, marketers need to have a clear understanding of how patients are classified within the analysis. For many brands, by the twelfth month of therapy, the largest customer segment contains those patients who have not maintained the high standard of behavior, but who continue on therapy. These patients, often called “cyclers,” are usually excluded from persistence analysis once their behavior degrades past the grace period limit. However, some brands choose to include cycler behavior in persistence analyses to improve results in later time periods.

**Some marketers limit their view of patient behavior to understanding persistence, yet it is of such limited scope that conclusions made without other dimensions of adherence can be misdirected.**

Including cyclers in persistence analyses can be dicey. The challenge is that re-emergence of cyclers within a cohort can counter dips in actual persistence and, on rare occasions, can cause a month-over-month increase in persistence. The net effect is that incorporating cyclers in persistence analyses tends to degrade the clarity of the analysis and creates misleading measures.

### 2. Compliance & Medication Possession Ratio (MPR)

##### *Definition*

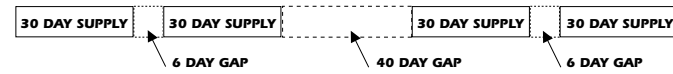
Compliance measures the degree to which patients have realized the potential for therapy for a distinct time period. Put another way, compliance measures the quality of patient behavior for a specific period of time. There are two methods of measuring compliance:



**Compliance Rate**

Compliance rate is calculated as [Days Supply] / [Total Calendar Days] of the period of analysis.

To illustrate:



In this example, the patient takes 90-day supply in the span of 142 days. The compliance rate is 90/142=63%.

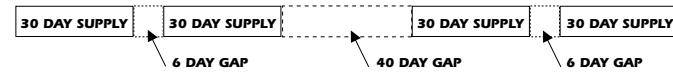
**Medication Possession Ratio (MPR)**

MPR is calculated as [Quantity Dispensed] / [Quantity Needed]. Using the compliance rate example above, if the product is prescribed for one pill per day throughout this period, the calculation would be identical. In the case of a change in dosage, the quantity needed can be calculated as the average daily dose multiplied by the number of days in the period of interest.

In short, compliance rate and MPR are similar measures – compliance rate is a measure of therapy days consumed over time, whereas MPR is a measure of medication use over time. It is also important to note that compliance measures, whether they are measured as compliance rate or MPR, focus only on the quality of behavior of patients who are on therapy and do not account for how well a brand is able to keep patients on therapy.

**Challenges**

A common problem in the calculation of compliance rate is in the handling of the final fill in the period of analysis. Using the same example:



Some marketers include the days of supply of the final fill in the numerator and extend the denominator timeframe by the same value. Applied to the example above, the incorrect method would count 120 days supply over a period of 172 days, resulting in a compliance rate of 120/172 = 70%. The problem with this analysis is that it assumes that the final 30 day supply is consumed in 30 days. The 70 percent compliance rate is therefore propped up by 100 percent compliance in the final 30 days of the period.

Compliance measures are more accurate when the fill date of the final fill is used to define the point at which the penultimate fill has been taken. The days supply of the final fill is not included in the analysis.

**3. Length of Therapy**

**Definition**

Length of therapy is the period of time a patient remains on a given drug from their initial fill through the end of

the days supply of the last fill within the period of analysis. When evaluating length of therapy for a group of patients within a cohort, this is usually expressed as an average number of days.

**Challenges**

When adherence measures are reported to marketers, the time horizon needs to be long enough to be meaningful, yet short enough so the data is relatively recent. As a result, dashboard reports generally use a 12-month timeframe. In this regard, reporting on length of therapy represents a challenge when therapies tend to extend past 12 months.

Twelve-month average length of therapy is calculated as the average number of days between the start of the first fill and the end of days' supply of the last observable fill within the 12-month period. While this appears to be somewhat inaccurate for therapies that extend past 12 months, note that in those cases, the longer therapies will weigh the average higher, making the measure a good approximation delivered in a timely manner.

**Viewing patient behavior in a granular way**

The promise of many drugs lies in their use as a course of therapy. When patients take their medication as prescribed, both patients and pharmaceutical companies benefit through greater efficacy of treatment and greater pills sold. And yet patients do not always complete their course of therapy. Some fail to even fill their initial prescription. Some routinely go for weeks without taking their medication, while others cease treatment altogether. Therefore, it is crucial for marketers to understand the nature of the behavior of patients in their markets.

Pharmaceutical marketers can more fully understand the impact of their efforts on patient adherence by formulating a strategy to view patient behavior in a granular, accurate and consistent way. The first step is to develop reliable and accurate core adherence measures: persistence, compliance and length of therapy. Standardizing these core measures will provide a more accurate and well-rounded view of adherence to a treatment and drive better insights to support quality decision-making. ■

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