Supermarket Pharmacies

Winning with Consumer Engagement Analytics

By Jim Manzi

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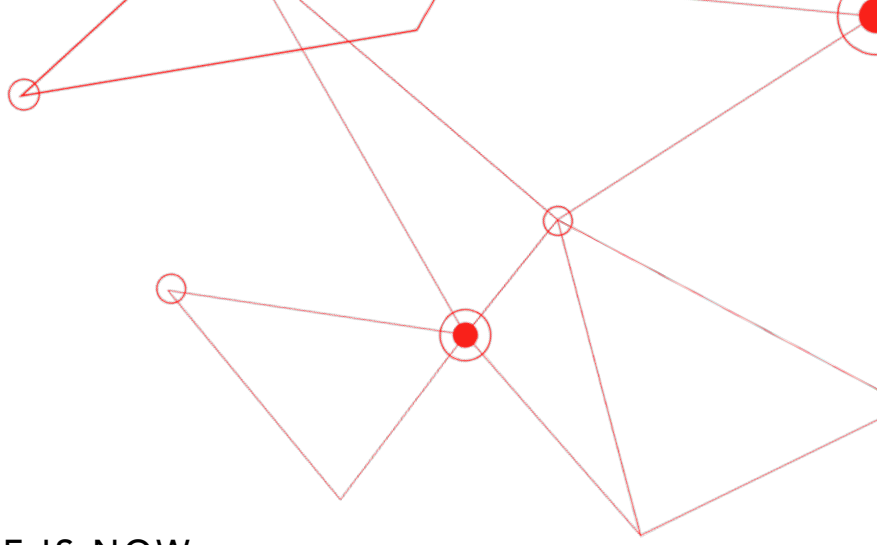
Jim is the author of several software patents for the automation of randomized experiments, as well as the 2014 Harvard Business Review article "*The Discipline of Business Experimentation*." His 2012 book *Uncontrolled* on the development and application of randomized trials was widely reviewed in the New York Times, Wall Street Journal and other national publications.

Jim received an SB in mathematics from MIT, and was subsequently awarded a Dean's Fellowship in statistics to the doctoral program at the Wharton School of the University of Pennsylvania. He serves on the Board of Directors of Aledade, an innovative value-based care company backed by Venrock and Google Ventures.



INTRODUCTION: THE FUTURE IS NOW

The healthcare world of the future — value-based care, direct-to-consumer, artificial intelligence, and so on — is no longer on the horizon; it is here now.

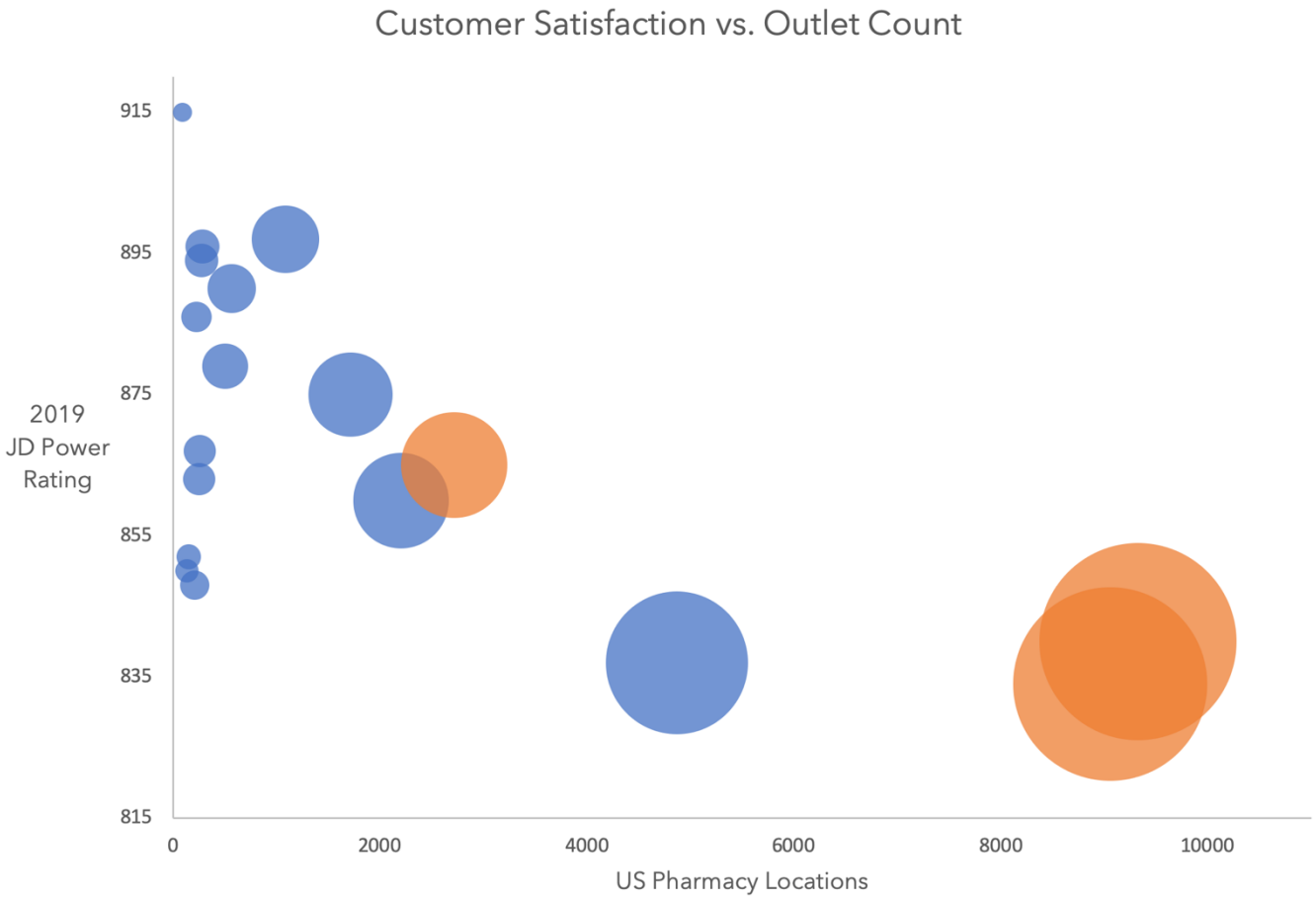
In 2019, the HealthCare Executive Group, composed of senior executives across leading providers, payers and technology companies ranked the key issues on which they are most focused.[1] The top 4 items? Data analytics, total consumer health, population health services and value-based payments.

This is a challenging environment for supermarket pharmacies. Continued consolidation of the pharmacy sector means that CVS and Walgreens can negotiate better deals with health payers and PBMs, and therefore charge lower prices to consumers. They can also offer more competitive value-based arrangements to the same payers and participate in direct-to-employer arrangements. Further, many consumers are visiting pharmacies less frequently due to 90-day fills and high-deductible plans, which disproportionately impacts grocery-based outlets that rely economically on cross-sell into the larger supermarket. Finally, the physical distribution channel as a whole is under pressure from direct delivery, especially as the Amazon colossus pushes aggressively into pharmacy. Even the pure-play pharmacy leaders are closing net locations, building out health clinics and undertaking aggressive cost-reduction programs in the face of this channel shift.

As a result, the number of supermarket pharmacy locations began to decline in 2017, after decades of aggressive growth. Target sold its pharmacy business to CVS several years ago, and Raley's recently closed more than 100 pharmacy locations. Some other major chains are less dramatically reducing the emphasis on pharmacy, but are still doing so.

THE ADVANTAGES OF SUPERMARKET PHARMACIES

Despite the negative mood, mass merchants and grocery chains still have significant competitive advantages in pharmacy. First, the original logic that pharmacy can drive customer traffic that can be converted to much greater margin capture in large footprint stores remains valid. Second, the increasing penetration of the health / wellness / organic concept into the mass market means that the pharmacy fits even more naturally into supermarket brand positioning. Third, supermarket pharmacies operating in a retail context do a better job engaging with and serving consumers. The following chart illustrates that supermarket pharmacies (blue) generally have substantially lower outlet counts, but often better customer service, than the leading chain drug stores (orange):



Source: IQVIA 2019 US Pharmacy Market Report; JD Power 2019 Pharmacy Study; Corporate websites; Foundry.ai analysis

THE KEY ANALYTICS CAPABILITY IS CONSUMER ENGAGEMENT OPTIMIZATION

Succeeding as a supermarket pharmacy in this new environment requires reinforcing core strengths fundamentally centered on greater consumer engagement: (i) providing better service, (ii) engaging on a broader health and wellness relationship and (iii) maximizing capture of cross-sell margins in the balance of the store. Therefore, the most leveraged pharmacy analytics capability for mass merchants and grocery chains is optimization of consumer interactions.

Fortunately, such optimization opportunities abound in supermarket pharmacy chains. A few illustrative examples include:

- Outbound emails, texts and calls to increase proportion of days covered (PDC) under P4P contracts
- Adherence communication to drive completion of course of treatment
- Prescription pick-up emails and texts to reduce Return-to-Stock
- Non-pharmacy offers to pharmacy patients
- Auto-fill / contact for inbound e-scripts

In each case, targeting expensive communication, persuasion and enablement resources where they will create the greatest benefit offers tremendous EBITDA gain and better care. But in our experience, even sophisticated pharmacy chains are not capturing the vast majority of the value available from optimizing these kinds of programs.

None of these example ideas are new to pharmacies, nor is the idea of targeting them to patients where they will be most effective. So why are many opportunities like this under-exploited? Because even the sophisticated analytical systems deployed by most large pharmacy chains are missing a key ingredient necessary to target and improve such ideas with sufficient granularity.

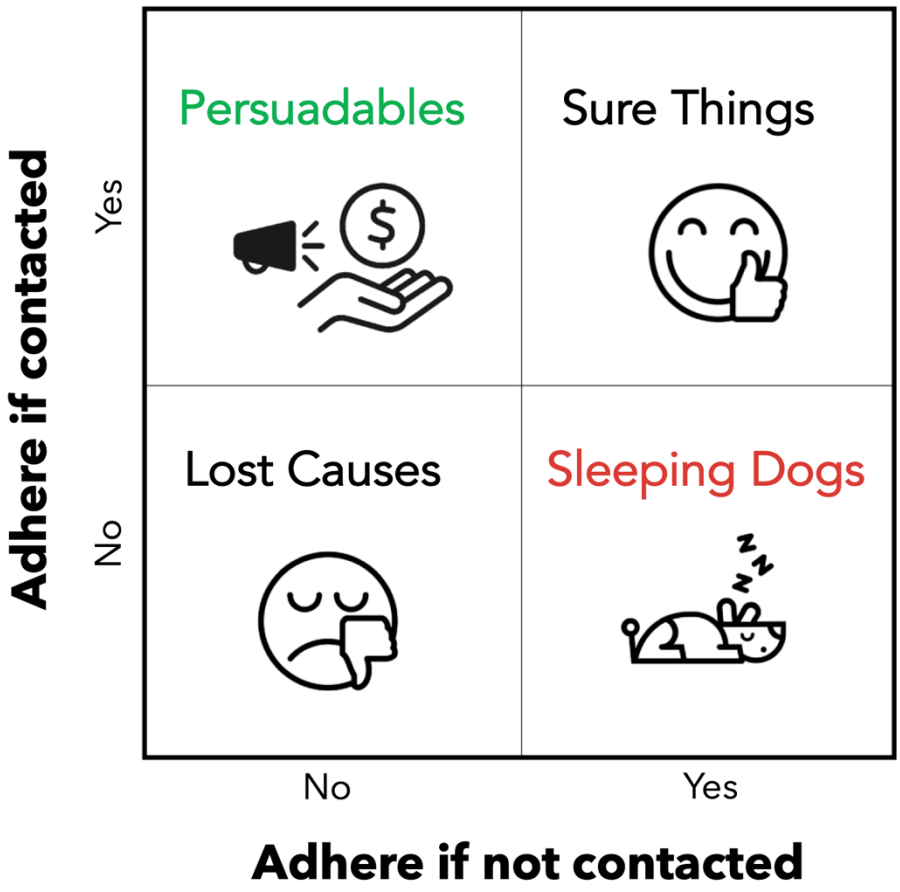
OPTIMIZATION REQUIRES UNDERSTANDING BOTH RISK AND RESPONSE

Over many decades, health payers have developed advanced risk scoring models of various types. More recently, and mostly in response to their growing exposure to risk under value-based care (VBC) arrangements, many pharmacy chains have built comparable risk stratification capabilities by partnering with payers, using third-party resources or creating their own risk tools in-house. They have naturally turned to these methods to help target various value-driving programs.

A practical example is targeting expensive adherence interventions such as pharmacist outbound calling programs to those patients who are most at risk of dropping out before completion of an extended and unpleasant course of treatment. This risk-based targeting is fine as far as it goes, and will generally improve program effectiveness materially.

But what it misses is a key dimension of the problem: the response propensity of each patient. For example, there are high risk patients who will not change behavior in response to even a well-timed and well-executed call. The money spent calling them is entirely wasted. More perversely — but in our experience, always true for a non-trivial minority of patients for any given intervention — there may be patients who would have completed treatment, but drop out *because* we called them. In that case, we actually pay money to get a worse outcome. Typically, risk of non-adherence and response propensity are at best very weakly correlated, and are in practice independent effects.

We can therefore represent the possibilities in the following matrix:



Ideally, we would only contact the "Persuadables," and prioritize *within* this group using our risk models. The most effective approach to do so is to:

1. Estimate for each patient the risk (or more formally, the expected value) of non-adherence if not contacted;

2. Estimate the probability of change in adherence if contacted for each patient;

3. Select the patients to call based on maximum projected change in expected value of non-adherence caused by calling them.

BUILDING A PHARMACY ENGAGEMENT OPTIMIZATION CAPABILITY

Building an optimization capability demands two important extensions to the historical risk-centric approach.

- Predicting response propensity requires causal analysis of prior attempts to implement comparable programs — e.g., *"What was the actual incremental effect of that adherence calling program, and how did it vary by patient?"* This is the foundation of all reliable propensity modeling. However, it requires different mathematical methods than risk modeling, many of which have only recently emerged from academic research[2] in the past several years, and that have not been widely deployed in the healthcare sector.

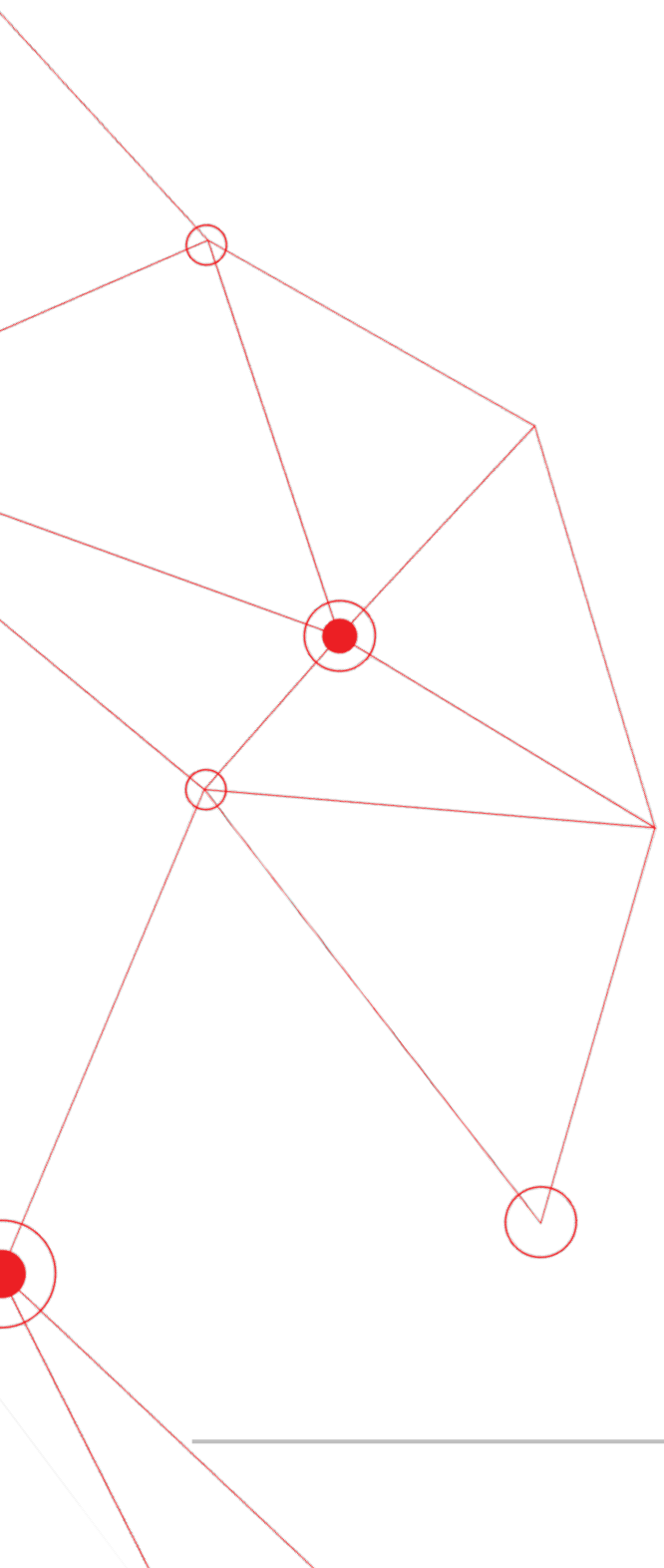
- As the pharmacy chain attempts variants of a program (for example, calls versus texts, message A vs message B, etc.), the inherent risk profile of each patient doesn't change, but the response propensities for a given patient to different program variants are different, and often dramatically so. This implies the need to build many such sophisticated response propensity models, which in turn implies a need for infrastructure to semi-automate model building at an advanced level that integrates analytical methods with a variety of internal and external data sources.

These extensions are not simple, but new technologies have made them practical for real-world supermarket pharmacies.

The economics of this are extremely attractive. A rule-of-thumb is that program targeting using optimization methods that combine risk and response propensity models will drive 2X - 4X larger gains in program economic efficiency than targeting using risk models alone. As a typical example, a leading value-based care provider executed a PDC improvement calling program focused on patients that had historically shown intermittent coverage gaps during prior holiday seasons. On average, the cost of each call was $9 and the increase in gross margin created by each call was $15, leading to an expected value per call of $6. As a first improvement effort, they then targeted these calls using a model that predicted expected coverage gaps for the upcoming holiday season, which increased the expected value per call to $9.

They next further refined their targeting by combining a response propensity model with this risk model, which increased the expected value per call to $16.

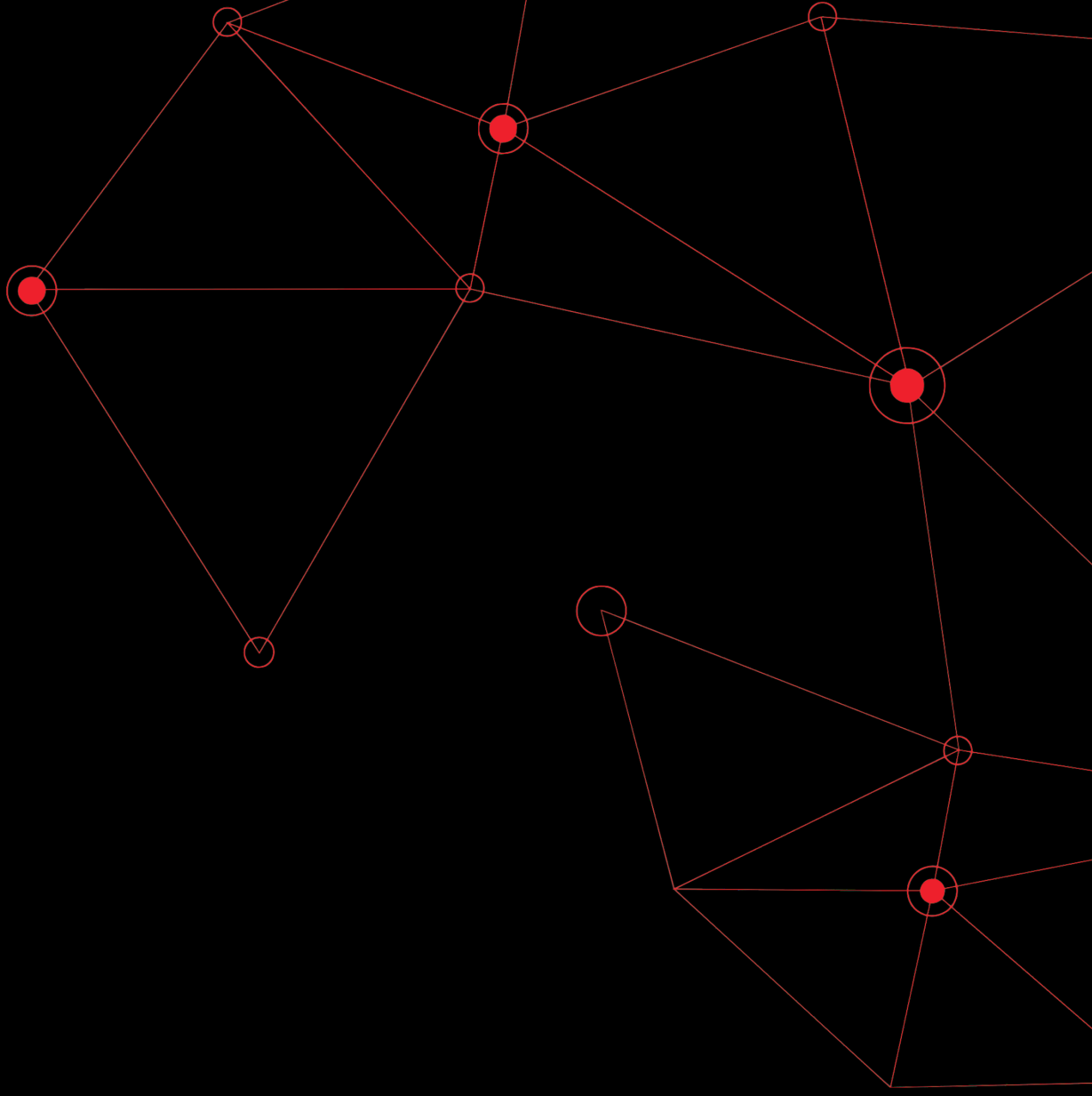
Applied across numerous programs, this approach can create tens of millions of dollars of measurable annual EBITDA gain for a large supermarket pharmacy chain, as well as substantial improvements in quality of care.



SOURCES

1 HCEG, '2019 HCEG Top 10', *Healthcare Executive Group*, https://hceg.org/hceg-top-ten/

2 Susan Athey & Guido Imbens, 'Recursive partitioning for heterogeneous causal effects', *Proceedings of the National Academy of Sciences of the United States of America*, https://www.pnas.org/content/pnas/113/27/7353.full.pdf



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