FROM BIKES AND BANKS TO CLINICAL TRIALS

To reduce costs, increase retention, and maximize compliance in clinical trials, look at and learn from other industries.

Clinical studies take too long, and they cost too much. As a result, it takes too long to bring new drugs to market. What techniques can pharmaceutical companies develop and deploy to bring drugs to market faster, at lower cost, and with greater compliance among study subjects? Datacubed Health looked at other industries for inspiration. We found common challenges related to data security and customer compliance and retention. We discovered that improving compliance and retention goes hand in hand with reducing the cost of gathering data. And we concluded that pharma has fallen behind — but can catch up quickly by adopting and adapting best practices from other sectors.

A TALE OF TECHNOLOGIES: BANKING VS. PHARMA

The original banking "technology" was the teller — an in-person data collection method in which an individual meets with a customer, gathers data, identifies the customer with a signature, and then returns cash. At about $5 per transaction, it's an expensive way to serve customers.

Of course, the banking industry has become progressively more innovative, moving from automated teller machines to web portals to today's mobile apps. Along the way, the industry has achieved higher reliability, greater accuracy, and tighter security — all while reducing per-transaction costs.

Most large banks now use mobile applications, which combine two-factor authentication and biometric identification. In short, these apps have achieved levels of reliability that would have been unimaginable in the days of paper transactions with tellers — and they are performing these interactions at well under a penny per transaction.

> Banks have been able to improve retention and reliability while driving down per-transaction costs.

Now let's take a quick look at the technology used in clinical trials.

If you walked into a typical study in the 1970s, you might have seen people engaged in data collection in a way very similar to how bank tellers interact with customers. A clinician or assistant would sit down with a piece of paper and gather data verbally from the patient. This approach was highly secure because of strong patient identification, but the reliability of the data was extremely low. After being recorded longhand, the data had to be re-entered and typed again before it was entered ultimately into a large database. The cost of a typical transaction would be range from $25 to $100 in today's dollars. That per-transaction cost covers the clinician's labor costs, encoding and movement of the data, and security-related expenses.

By the 1990s, the pharma industry had begun to gather data in subjects' homes. Typically, that meant handing participants spiral-bound notebooks for in-home logs. This represented a fundamental decrease in security but a significant improvement in costs. These diaries yielded a lot of data without the intervention of two or three clinicians, and that was an advantage. Yet in many corners of the industry, this advantage did not outweigh the loss of reliability and security. Even today, there remains limited adoption of in-home logging.

By 2000, pharma companies were beginning to examine web portals – again, significantly behind the timetable of other industries. Today portals are in wide use but still are not really dominating the clinical trials space. In general, portals are moderately secure, moderately reliable, and successful in achieving data costs of about $5 a transaction.

Where Datacubed Health sees the greatest opportunity is in the use of mobile technologies. With mobile, trials can leverage biometrics to guarantee a much higher level of security than is possible with any other tool. Mobile puts the sampling technology in the participant's pocket. The systems are now completely reliable. And the cost per transaction comes in between $1 and $10 depending on whether a sponsor chooses to provide devices to trial participants or asks them to use their own devices. (Most other industries have abandoned provision devices in favor of the "BYOD" model, and not at any loss in security.)

Bottom line? Banking has gone from $5 to less than a cent per transaction, while pharma has gone from around $25 to about $10 per encounter. We see a tremendous opportunity for pharma to catch up – and we have identified best practices from other industries that can help.

CASE STUDY #1: OPTUMRX

Lowering data acquisition costs

Like pharma, healthcare payers face complex HIPAA and data security requirements. Even so, some payers have been able to make leaps similar to those achieved by the financial services industry. OptumRx is a prime example. The pharmacy services provider has unleashed the power of diverse data sources and extensive automation to drive per-transaction costs down to pennies.

	DATA ACQUISITION METHOD			
	Coders reading faxes	ICD-9 terminals and mainframes	Electronic health records	**OptumRx:** Integration with provider network
Automation	Least automation	Some automation	Mostly automation	Most automation
Reliability	Least reliable (two potential sources of human error)	Data standards designed for a different application	Susceptible to poor-quality input data	Includes data beyond the EHR
Cost per data point	$3,000	$500	$100	Pennies

How do they do it? OptumRx automates data collection, standardizes data formats, and gathers data at large scale – integrating as many data types as possible.

CASE STUDY #2: PELOTON

Increasing retention rates

At the start of every new year, exercise clubs and gyms experience a surge in membership – only to see a much smaller percentage of people remaining active and engaged a few months later. Peloton has revolutionized the wellness industry by bringing the "gym" into consumers' homes and leveraging data and analytics to deliver a highly personalized experience. The result has been dramatically higher retention rates compared to traditional gyms.

	TYPE OF MEMBERSHIP			
	Community center	Chain gyms	Boutique gyms and specialized classes	**Peloton:** At-home boutique experience
Personalization	No personlization	Greater choice	Some personalization for frequent users	Highly interactive, personalized experience
Quality	Lowest	Increased	High	Ultra-high
Access	Few locations	More locations	Limited locations	In home at participant's convenience
Rentention rates	Very low	Low	Mediocre	Best

How do they do it? First, Peloton has a convenient device at the core of the experience. It focuses on high-quality instructors and a consistently positive class atmosphere. It leverages rich data and analytics about each member to create a highly personalized experience. And it cultivates face-to-face and online communities for social support and feedback to improve the product.

CASE STUDY #3: FOURSQUARE

Maximizing compliance levels

Stores used to rely on handing out fliers to passersby before moving on to more targeted hard-copy or electronic coupons. Meanwhile, Foursquare has transformed the way businesses and brands can interact with consumers – using location data and consumers' own input to serve up uber-targeted offers in real time. In fact, Foursquare has a high degree of success in getting consumers to consistently complete up to three surveys a day.

	MARKETING TACTIC			
	Fliers handed out on the street near store	Coupon provided for future purchase at the same store	Coupon provided via email based on shopping history	**Foursquare:** Custom real-time offers for new business
Ability to reach general audience	None	None	Some	High
Personalization	None	Moderate	Good	High
Cost per conversion	High	Medium	Low	Lowest

How do they do it? Foursquare has rebranded location tracking as "life logging." It leverages social networks and provides non-financial incentives for providing data. Based on that shared data, Foursquare provides personalized feedback. Perhaps most importantly, Foursquare is very fast and simple to use.

BANK ON THESE BEST PRACTICES

1. Follow OptumRx when it comes to data capture and management.

Most pharma companies are still manually collecting data, which introduces errors, extends timelines, and reduces compliance. Trials often use different data formats depending on the country or site, sometimes because of legacy computer systems, sometimes due to EHR features. Full standardization across an entire study is surprisingly rare – and that's a costly mistake. Build a seamless, scalable clinical deployment system to ensure consistent data capture at every investigative site.

2. Make participation as convenient, personalized, and engaging as using a Peloton.

Want study participants to share data? Then make it easy for them. Is a website "easy"? At best, participants must go home, boot up their computer, and type in some data for the study; at worst, they have to visit a public library or hospital to use a computer. Adopting the Peloton model – that is, do this whenever and however you want – will drive up retention rates.

The second thing Peloton has proven is the importance of a high-quality user experience. Even when pharma incorporates smartphones, the experience tends to be dominated by text interfaces, not the friendly look consumers enjoy on their iPhones. In addition, incorporating avatars helps participants have an "identity" and stay engaged in the interface. Datacubed Health's firsthand experience has shown that when a clinical trial app includes personal avatars, participants will spend a great deal of time playing with and configuring their online alter egos.

3. Make interactions as fast and easy as a Foursquare survey.

Ensuring compliance with daily surveys and other instruments is a recurring challenge for trials. Foursquare shows how to achieve breakthrough compliance: Make it easy.

If a participant needs to enter the foods eaten over the course of the day, it shouldn't require a 25-minute web process with 2,000 clicks and 25 text entries. Redesign that instrument so that it only takes 50 colorful button pushes, and a trial can achieve the same data density with incredible ease of use. It can even be fun for participants, which further enhances compliance.

Foursquare also underscores the need to keep instruments short and sweet. Traditionally, trial participants have been asked to interact about the study for extended periods of time. That just isn't sustainable. Instead, interactions must be effortless. Enable participants to get to an instrument collection in five seconds and spend a couple of minutes on further engagement. If participants can check in for just a short period of time, they will keep coming back. At the end of each two-minute session, offer "rewards" (for example, virtual confetti, a badge, or a fun hat for their avatar). Incorporating multiple forms of incentives – from digital swag to real-life gifts – is another important way to drive compliance.

What now?

There are proven solutions to help accelerate the journey to lower costs and better retention and compliance in clinical trials. Innovative technologies and behavioral economic techniques can help pharma emulate – and exceed – the successes observed in other industries.

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