

Measuring Sales Rep-Physician Relationship Disruption in Sales Force Optimization and Territory Alignment Analyses

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The commercial analytics of pharmaceutical sales force optimization (SFO) and territory alignment (TA) have come a long way since the seminal work on these topics over 40 years ago.¹ Sales force analysis within the context pharmaceutical industry has long been used as an incubator of innovation applied to other industries. Pharmaceutical companies spend significant resources on their sales forces, face numerous complex sales force decisions, deploy both geography and account-based sales forces, and employ sophisticated analyses to ensure maximum sales rep productivity. Pharmaceutical SFO and TA modeling is now considered fairly routine as evidenced by the numerous consulting companies that provide these services as touted at industry conferences like the Pharmaceutical Management Science Association (PMSA).

Yet, despite the growing complexity of the pharmaceutical B2B selling process between sales reps and physicians given the industry's shift to launching specialty medicines, one important factor is generally missing from SFO and TA analyses – accounting for sales rep-physician relationship disruption (SR-PRD). What is SR-PRD? SR-PRD is simply the breaking of existing sales rep-physician relationships in the field that often occurs when translating SFO strategic outcomes to TA tactical plans. Why is SR-PRD often ignored? There are a few potential reasons. First, one reason lies with the linearity of the SFO and TA processes. TA is generally the first sales operation process done after the SFO process outcomes have been generated. While strategic SFO analysis is generally done at the brand-segment level, tactical sales force operations like TA are accomplished at the sales repterritory level. Thus, a failure to look forward when conducting SFO analysis to practical execution issues may produce

an unexpected and undesirable level of SR-PRD. This may generate undesirable significant internal and external costs. Such relationships are often broken when a change occurs in the sales force size, structure, and allocation, which in turn manifest themselves when moving to sales operations like territory alignment and call planning. Even a small sales force size change can have national ripple effects, thus maintaining the sales force design and introducing overlay structures in those areas where more sales force effort is needed likely produces a far more desirable result. Second, breaking sales rep-physician relationships is often done by the unintended results from senior leaders demanding changes in business rules that create knock-on effects on sales force planning. Thus greater understanding by senior leaders on the impact from SR-PRD on business performance could mitigate these unintended effects. Third, there are data and technical challenges in calculating and incorporating SR-PRD into SFO and TA process outcomes, though I believe not insurmountable. For example, one challenge is gathering historical data to measure the length of a sales rep relationship with each physician in their territory, given mirrored sales teams and/or team-based selling where more than one sales rep may have accountability for a physician. While these issues were more prevalent in the past, industry trends going forward would suggest that data gathering and measurement is less of an obstacle to engage in SR-PRD analysis. These industry trends include a reduction in mirrored sales teams, more account-based selling, increases in sales rep access restrictions to physicians, and a greater focus on physician specialties away from primary care given changes in product portfolios. Another challenge is technical in nature. Incorporating SR-PRD is both expensive and time consuming given required added data manipulation and modeling.

The measurement of sales rep-physician relationship days combined with frequency can be modeled on rep effectiveness, which can be used to measure a "disruption tax." A further technical challenge is one of timing when doing a realignment and people placement before calculating SR-PRD. There is a simultaneous relationship between the former and latter elements here, so the technical solution requires a more sophisticated empirical solution.

So the existence of undesirable SR-PRD is due to poor planning and ignorance about the important role relationships play in response analysis and data/technical issues. Admittedly, while accounting for SR-PRD is not a straightforward process and requires additional analytics to be performed, the benefits gained from the insights may be well-worth the effort, especially given the significant potential costs of breaking sales rep-physician relationships.

What is an underlying theory behind the effects of SR-PRD? The pharmaceutical selling process is becoming strongly evidencebased and relationship-based. Complex specialty medicines, that are becoming the focus of drug companies, require more in-depth discussions with physicians. Prior research has shown that indirect and direct effects of disseminating scientific evidence are a significant driver of pharmaceutical sales.² Environmental factors such as the increasing influences of managed care, increasing sales rep access restrictions to physicians which limits sales rep detailing frequency per period, and the growing emphasis on health outcomes and cost effectiveness places greater importance on the strength of sales rep-physician relationships to provide informative product discussions. We will discuss the ramifications of SR-PRD effects by looking at the opposite case – what happens when sales reps develop stronger relationships with their physicians. The effects of increasing SR-PRD is merely the reverse.

Technically speaking, the individual physician sales response curve on the P(Rx) (probability of a Rx) to details/period provided by a sales rep looks like a S-shaped threshold function.^{3,4} Figure 1 depicts the individual physician sales response function. The P(Rx) function is bounded by 1 (probability of a Rx will certainly occur) and 0 (probability of a Rx will certainly not occur). The factor varying along an individual physician sales response function is details/period, all else being constant (such as the overall access, detailing quality, etc.). The S-shaped function at the individual physician level is also consistent with the nature of the B2B pharma selling process, requiring a certain frequency of details/period to elicit an eventual sales response. Time is needed for the sales rep to develop trust and go through the complex medical information





associated with a drug before the physician is willing to adopt a drug therapy conveyed by the rep for their patients. A S-shaped sales response function also means there is first increasing and then decreasing marginal returns (beyond the inflection point). Since sales force profit maximization only occurs in the decreasing marginal returns section of the S-shaped function, it is critical that a sales rep develop sufficient trust with a physician so that details/period occurs past the inflection point. Finally, another effect from greater sales rep-physician relationship quality could be to develop an increase in the speed at which a sales rep is able to generate a physician Rx sales response. This effect would be very beneficial during times of launching a new drug or new indication, or where a quick response is needed to counter competitive threats or adverse news events. The forthcoming discussion will not discuss a "speed" effect caused by greater sales rep-physician relationship quality, but recognizes that the effect could exist. The data and analytical techniques exist to measure this hypothesized relationship as well.

Given this background, what are the possible effects of sales reps developing stronger relationships with their physicians on Rx sales response. The effects from stronger sales repphysician relationships can be characterized on positively affecting a change in Rxs in the following ways, as depicted in Figure 2, using traditional segment-level concave sales response functions:

- "Access" effect Reps with stronger physician relationships will be able to gain greater access to provide the opportunity for not only greater details/period but also access to other staff in the office in support of physicians and patients. This also means these sales reps will more likely be able to overcome access restrictions, whether they be administrative in nature erected by health systems, group practices, or office-based restrictions erected by local gatekeepers. A sales rep with greater access means the sales response function shifts upward (A to B).
- "Detailing quantity" effect Reps with greater access will be able to deliver a greater number of details/period, with the effect determined by the sales response function (B to C).
- "Completion rate" effect Reps with stronger physician relationships will be able to finish individual productspecific detail discussions at a higher rate during a call, whether they be primary, secondary, or tertiary product



Figure 2: Effects from Improving Sales Rep-Physician Relationship Segment-Level Sales Response



discussions. This means these sales reps have more time to go through the full range of medical information designed for a product discussion for the physician, thus increasing the Rxs (C to D).

4. "Detailing quality" effect – Given a greater completion rate, reps with stronger physician relationships should be able to deliver greater quality of details given the greater time and trust they are given by physicians. This too implies a greater effect on Rxs determined by another shift in the sales response function (D to E).

The result of the above four effects from a stronger sales repphysician relationship means an increase in the details/period from $(D/P)_0$ to $(D/P)_2$ with the Rx response from Rx_0 to Rx_4 (total effect from A to E). The depiction does not reflect total carryover effects, but rather immediate direct effects from a stronger sales rep-physician relationship. Thus, the reverse of the above explanations would occur if sales rep-physician relationships are disrupted, resulting in a reduction in Rxs. Time is needed to rebuild relationships that were formed by a sales rep who is forced to move somewhere else. While experienced sales reps would be able rebuild those relationships faster than a less experienced sales rep, nevertheless, sales would be lost in both the short term and long term. Further, the preceding explanations explain "external" costs. What about "internal" company costs? Given the construction of incentive compensation (IC) plans for sales reps, breaking key relationships means sales reps having to "start over" with physicians, which in turn could lower morale thereby causing higher turnover. Lower morale and higher sales rep turnover results in various "internal" costs, such as, hiring, training, and other disruptive effects. To counteract these preceding effects, measuring the degree of disruption in a sales rep call planning deck is something that can be included in adjusting a rep's

objective setting goals for their territory. Therefore, a variable weighted Rx-objective setting goal scheme by territory can be created to adjust for the degree of relationship disruption per physician weight – greater discounting of sales rep goals where greater sales force disruption exists by value of a physician as a proportion of total territory Rxs.

Thus, the preceding discussion shows that increases in SR-PRD can have significant effects on the creation of external Rx sales response and generation of internal costs as well. Without accounting for the costs associated with SR-PRD, sales force strategy outcomes may be produce suboptimal longer term-discounted contribution and harm physician relationships needed for future drug launches than incorporating such effects into sales force management planning.

Finally, how does one go from the theory of SR-PRD to actual implementation into sales force strategy and operational plans (territory alignment, call planning, objective setting, incentive compensation, and sales reporting)? Below is a suggested research plan leveraging existing data within a pharma company and analytics:

- Experimentation is needed based on historical data already housed within a pharma company to analyze the elasticity relationship between the (% change of repterritory level Rxs generated)/(% change in weighted repterritory level disruption). Further analysis can be done on sales rep relationship day length coupled with frequency to determine sales rep-physician rep Rx effectiveness. These analyses represent empirical baselines as a starting point.
- 2. Further analytics is needed to determine deviations from the baseline elasticity estimate based on physician and

sales rep attribute segments, such as, physician specialty, ranges in the length of a sales rep relationship with physicians.

- Applications of the elasticity estimates derived in (2) can then be applied to discount Rx sales achieved in SFO and TA based on the degree of SR-PRD.
- Report using histograms charts across all territories (segmented by sales team, physician segment, and by geography) on the range of SR-PRD disruption.
- Individual sales rep objective setting would be adjusted by the extent of individual sales rep-territory level disruption, which in turn would affect incentive compensation.
- Further analytics should be employed to research the relationship between variations in sales rep-territory level disruption and sales rep turnover, which in turn generates further disruption but also internal costs related to sales force morale, recruitment, and retraining costs.
- 7. Elasticity estimates should be revisited after each sales force planning cycle to determine changes over time

The importance of maintaining sales rep-physician relationships and accounting for their disruption in SFO and TA will become even more crucial as the industry increasingly moves toward the launching of specialty medicines⁵ and major changes in environmental changes affecting pharma sales force science as recently noted by industry practitioners.⁶The good news for pharma companies is that solutions exist to solve these important issues that leverage both data they already have and analytics for better sales force strategy outcomes and sales operations execution.

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