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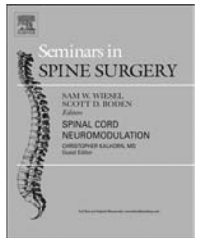

Spine care delivery and incentives

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ABSTRACT

A major drive of healthcare reform is transforming the system towards one that delivers greater value to the patient which will require a realignment of the current payment model. In the current fee-for-service system providers are incentivized based on volume. Previous research has demonstrated that providers respond to changes in incentive system. The study of behavioral economics demonstrates that humans have certain cognitive biases when making decisions. Understanding how incentives drive behavior can help spine providers as they attempt to reshape the healthcare system.

1. Incentives: how humans make decisions

In 1974 the psychologists Amos Tversky and Daniel Kahneman published a landmark paper titled "Judgment under Uncertainty: Heuristics and Biases".[5] Motivated by understanding how humans make decisions, Tversky and Kahneman began a series of investigations that led them to the conclusion that human decision-making is not as rational and predictable as had been previously thought. The judgments that individuals make are affected by many other factors beyond pure rational thinking.

The conclusions that Tversky and Kahneman reached went against standard reasoning at that time. Traditional economic theory works off the assumption that human decision-making and behavior is rational. Given the proper information human behavior responds to the proper incentive. Predicting the actions that people take can be done through a careful understanding of incentives. In a traditional market the seller of a good can be assured that a buyer will purchase a product if it fulfills a particular need.

Tversky and Kahneman's research demonstrated that human behavior is not always rational. This is demonstrated well by the observation that economic decisions made by humans can be strongly affected by both cognitive as well as psychological factors. The work conducted by Tversky, Kahneman, and subsequent other investigators have led to a tremendous body of research that has evolved into the field of behavioral economics. This expanded understanding can be applied to health care.

2. Decision-making in health care

In healthcare, understanding how incentives shapes behavior among providers continues to evolve. Applying traditional economic theories to healthcare has not always been successful. Healthcare does not work as a traditional market in that providers do not directly sell their "product" to patients. The third party payment system has resulted in a disconnect between the patient and provider, which leads to behavior that cannot be predicted using traditional economic rules. One of the first individuals who began to understand this issue intimately was Jack Wennberg from the Dartmouth Institute for Health Policy.

In the early 1970s, Dr. Wennberg observed that the rates of tonsillectomy were dramatically different in Stowe and Waterbury, two neighboring towns in Vermont.[1] Using rational assumptions, the rates of a particular surgery could be assumed to be based on the incidence of disease in that area

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or the attitudes of patients. Wennberg found a three-fold difference in surgical rates between Stowe and Waterbury even though both towns had similar populations. Subsequent work by him and others demonstrated that the decision to undergo surgery is affected by many other factors beyond disease incidence. These include the diffusion of technology, the supply of specialists in a region, local training, financial incentives, and local regulatory factors.[2] Wennberg's studies brought attention to the variation in decision-making among providers in the treatment of a disease.

Understanding the role that incentives play in producing this variation has been challenging. Hickson et al sought to answer this question with a study that was conducted among pediatric chief residents.[3] The investigators wanted to understand how reimbursement models affected the chief resident's decision-making in regards to setting their clinic schedule. The goal of the study was to determine if the reimbursement mechanism correlates to the number of patients seen.

The chief residents were separated into two groups based on their financial incentives (fee-for-service versus capitated remuneration). In the former group, residents paid for every patient visit per month. In the latter group, residents were given a fixed monthly salary in a capitated arrangement. In both groups, the residents were able to independently set their own clinic schedule. Conducted over a year, the study demonstrated that residents in a fee-for-service arrangement independently scheduled a greater number of clinic visits per month than the capitated group. This study showed how, consciously or not, financial incentives led to a change in behavior.

The US healthcare industry is currently undergoing a massive transformation. The goal is to realign the incentive program from one that emphasizes volume over value. The high costs of care have led to a tipping point whereby employers, governments, along with payers, are struggling to understand how to pay for medical care that can lead to greater value. There have been numerous reports on the variation of healthcare quality in the United States. If healthcare was managed purely as a business and the return on investment was examined, the results would be unsuccessful. This inefficiency in the allocation of resources is driving payers to look for alternative types of incentive programs.

Traditionally providers have been paid in a fee-for-service arrangement. While this system has led to remarkable achievements, it has come at a high cost with inconsistent quality and outcome results. The current drive to a value-based system can be viewed as a market correction whereby the over utilization of services (supply-induced demand) is being reallocated towards a system that delivers greater value for the patient (demand-induced supply). Achieving this will require a realignment of incentives. Physicians are humans. In trying to understand how incentives shape behavior, economists have understood that there are certain basic principles of behavior that should be taken into consideration when developing new programs. In developing a spine center at Westmed we employed various behavioral economics principles to establish a value-based center.

3. Principles of behavioral economics[4]

3.1. *Limitations of information provision*

It's not enough just to give providers information. It is clear that giving individuals information has to be coupled with some type of incentive program to be effective. In developing the Westmed Spine Center (the senior author's institution) our goal has been to increase access and decrease the wait times for a patient with a spinal disorder to see a provider. Consistent with this goal we gave providers information on their time to the third next available appointment, along with building into our incentive program a bonus for achieving same day access for a percentage of patients.

3.2. *Status quo bias*

Providers tend to resist change by maintaining the status quo. Changing a behavior would require a change in the default option that individuals have. Faced with the requirements of the electronic medical record (EMR) program, most are likely to choose a default option listed instead of taking the extra step to change towards another option. In an attempt to decrease inappropriate x-rays and MRIs at Westmed we implemented an electronic form that required providers to enter specific information before requesting an MRI. This requires an extra step beyond the normal process of ordering a spine MRI, which led to ordering of more appropriate imaging.

3.3. *Choice overload*

Within our daily lives, there are a multitude of choices presented to us, from the brand of coffee we drink to the programs we decide to watch on television. In spine care, providers have to confront a multitude of options when treating patients. It is important not to overload physicians with too many choices, as the default would be to not choose any option. Many decision support programs adhere to this principle. Within our EMR forms we present clinicians with limited treatment recommendations based on the information entered. This helps to provide guidance on appropriate treatment options without overloading the provider.

3.4. *Immediacy*

The overall goal of a value-based healthcare system is to provide the proper incentive to lead physicians to continually improve. Individuals are more likely to respond to an incentive that is immediate (i.e., delivered in the short-term) rather than delayed (i.e., delivered months after the act). For instance, performance reports that are given more frequently to individuals are more likely to change behavior than annual reports.

3.5. Loss aversion

A loss of something owned is more likely to change behavior than a gain of something new. An experiment conducted on teachers demonstrated that their performance improved when they were paid in advance and then asked to return the money if they did not achieve their metrics. In spine care many surgeons monitor their operating room (OR) utilization to prevent the loss of allocated time. Losing OR time is a bigger driver of behavior among surgeons than gaining more OR time.

3.6. Relative social ranking

In medicine, this behavior principle is widely used and often very effective. Providers tend to be competitive with each other. When a provider is shown their performance relative to others they are more likely to take the steps necessary to improve themselves. If given an anonymous list they are not likely to self-improve.[5] In cardiac surgery in Pennsylvania and New York, the release of outcome data after coronary artery bypass grafting (CABG) surgery led to marked improvements in performance outcomes among surgeons.

3.7. Threshold effects

Sometimes it is better to reward improvements than reward a particular threshold. If the goal is too far off, people are less motivated to achieve it. As individuals approach their goal, they will try harder to achieve it. The Center for Medicare and Medicaid Services (CMS) has implemented the Accountable Care Organization (ACO) program as a demonstration of its desire to transition value-based care. Many providers have dropped out of the program. For some the goal of achieving savings was too high to justify the increased work that would be required.[6]

3.8. Limits of willpower

Physician burnout has become a more noticeable problem recently. There are many factors that can contribute to this. The constant pursuit of excellence can be tiring for a provider and lead to a loss in willpower. Ultimately, when designing a program, it is ideal to make the achievement of high quality care the "path of least resistance." This can help preserve a physician's energy.

4. Conclusions

As the United States healthcare system continues to transform from one that emphasizes value over volume, understanding how incentives drive physician behavior will become more important. Providers should understand the principles of behavioral economics as they attempt to reshape their own incentive programs.

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