

Lemon Principle and Signaling Quality in Context with Spine Surgery

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Abstract

Medical specialty has been considered as a noble profession related with the service to mankind. However, consumer protection act considers it as a service industry with all its norms and rules applicable. If we consider spine surgery, the majority of patients as well as society advocating non-surgical treatment due to associated misbeliefs and complexity of surgeries despite of its obvious benefits. The question arises how can we apply business principles to alleviate the hurdles in the spine surgeries and elevate the perception of the surgical treatment in the minds of the patients. Two famous noble prize-winning principles of business “Lemon principle” and “Signaling” would probably answer these. In this article, I have attempted to touch on these two principles in relation with spine surgeries and I am sure that such principles would help us in improving the health-care quality across all specialties.

Keywords: Medical service, Consumer act, Lemon principle, Signaling, Business.

Introduction

Lemon principle and signaling quality! What are these principles/qualities? As doctors/medical professionals, we are less aware or in other words, we are the least bothered people regarding the true-sense of business facing the fierce competition. As our society accepts medicine as a noble profession which is related with the service to human; however, as far as consumer protection act is concerned, it is a business that relates with the service industry similar to any other industry, such as, hospitality, IT service, consulting service, real estate, or automobile industry. All other business, but hospital services, mainly function on demand-supply, profit-loss, revenue-cost related to profit maximization, or increasing the wealth of shareholders [1]. In India, health-care is broadly covered by the government funded institutions, self-managing private/public limited companies, trusts, and private nursing homes/clinics. There is a significant portion of health-care services being covered with the last category which is private nursing homes/clinics. This is usually a proprietorship or partnership basis where the doctor or a group of doctors pour their hard-earned money into the development of business with unlimited liabilities and risks. They basically learn the

business ideas with their learning experiences over a period of time. There are many occasions/incidences where patients take treatment at one place and frequently change the place; or if they do not get the desired results, they even propagate against the treatment of that particular treatment at specific place or in general. This is typically true when we discuss regarding the spine surgery where we come across many patients saying that spine surgery should not be considered because results are not good or patient has to stay in bed for life-long. Why is this so? We frequently find such patients in our day-to-day practice that there are more opponents those proponents for spine surgery. The big question is how can we overcome? This is where lemon principle and signaling principle of economics would be of great help; and I believe, we must give it a thought.

Lemon Principle

Now, let us dive into the origin of lemon principle. It was first formally stated by George A. Akerlof, Professor of Economics at the University of California, Berkeley, and his paper won him the Nobel prize [2]. His famous lemon principle says that the presence of people in the market offering inferior goods tends to drive the market out of existence, if it is difficult to separate good quality from bad quality. He had used market of used cars to explain this principle how it works. He has used seller and buyer point of view. If we apply this example to spine surgery, physician (spine surgeon) becomes seller and patient becomes the buyer. Potential buyers know less about the quality of used cars or the treatment in case of spine surgery. Now, first, let us talk about used car market according to Akerlof which is known



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as information asymmetry. Suppose, half of the cars in the market are of good quality and half are of bad quality. These bad quality cars are also known as “lemons.” Therefore, there are 50:50 probabilities that car will be of good quality and vice versa. An average buyer who is unknown about the car quality, also known as information asymmetry, will always try to bargain while buying a used car. Suppose, worth of a good car is 100,000 (unit is not written) and that of a lemon is 50,000. Now according to the averaging principle, buyer is going to bargain it for 75,000. What happens then? This average price is less than the worth of a good car and definitely more than the “lemons.” This price is known as weighted average. As price of the good car is worth less than its actual price, a seller of good cars either compromises or makes loss or leaves the market. On the other hand, sellers of bad cars (lemons) will be happily supply and initially book exponential profits. Similar cycles will happen repeatedly, which eventually remove sellers of good cars from the market and ultimately only “lemons” prevail. On the buyer side, what will happen? As their cars are not of good quality, they would either start demanding it even a lower price than 75,000, and in effect of that more numbers of good car sellers go out of the market. Buyers will also start feeling that used car market is not reliable and recommend not buying used car even if it is cheaper.

Application of Lemon Principle to Spine Surgery

This exactly what happens in spine surgery where more and more lemons being served with increasing rate of post-operative complications and poor results, patients will start losing faith in the surgery or treatment. This would, in fact, propagate spread of other “lemon” treatment such as quacks or else. People will also start cursing spine surgeries and advocate not to undergo spine surgeries. This is known as application of “lemon principle” in the field of complex surgeries or spine. The lemons principle is at work in adverse selection, a process by which “undesirable” buyers or sellers are more likely to participate in a market. As savers are unable to spot good entrepreneurs, they offer a weighted average price for the investments/treatments. That price would be too low for good entrepreneurs/service providers and they will leave the market, as a result of which there will be a larger proportion of bad entrepreneurs/service providers in the market.

Signaling Quality

In a simple word, signaling quality means counter to the lemon principle. Hence, are we interested knowing and learning that to be implemented in our day-to-day practice while boosting confidence of our patients in believing spine surgeries? Answer is probably yes. If we take the previous examples of used car market, there are many cities where used car market is flourishing and developing despite the lemon principle. What

makes it working? We find the answer in a well-known paper by Michael Spence, Professor of Economics at Stanford University – he was awarded the Nobel Prize for this research [3]. He had used example of job market to explain and counter the lemon principle. Professor Spence argued that job applicants with superior skills or abilities would invest time and resources in acquiring superior educational qualifications to distinguish themselves from less skilled applicants. This is signaling. Signals should be costly to be effective. If signals are costless, everyone can send them; so the signal is of no use. If we apply his ideology to used car market, sellers of good cars often give their surety. For example, if you want to become a successful academic, you will invest time and resources in getting admission to the higher educational or PhD program of a good university and complete the course. This is a costly signal because a less competent person has a low chance of completing a higher education or doctorate from such an institution. In the used-car example, a seller of a good car could give a performance warranty for a certain period of time. “Signaling” thus mitigates information asymmetry. Hence, if by chance the car that he sells is not of good quality, he will immediately return the money or replace it without any extra cost to maintain his reputation. This is what signaling is. If the seller is of a good quality dealer, he knows such a situation may not arise frequently in his business and he can even build up his reputation through the signaling quality. On the other hand, if lemons’ dealer tries to imitate this signaling quality, he may get initial success; however, at the end, there will be a huge loss due to repeated exchanges due to poor quality of his cars. Eventually, all lemons will phase out of the market and only good car sellers will exist. However, this is a time consuming effort which must be developed to sustain in the competitive world. Here are two recent examples of signaling: In August 2014, Tesla Motors increased the warranty on Model S electric motors to match that of the battery pack. Hence, the company’s most popular model now has an 8-year infinite mile warranty on both the battery pack and motors. There is also no limit on the number of owners during the warranty period. In February 2015, Huawei, the Chinese technology group, appointed former BP chief executive Lord Browne to head a UK board of directors that will oversee British operations to dispel concerns over its corporate governance. Extending Professor Spence’s idea of educational signaling to the capital market, good entrepreneurs and managers can differentiate themselves in a number of ways, such as consistently paying higher dividends, giving credible guarantees of higher returns, appointing reputable accounting firms to audit their financial statements, having respectable outsiders as independent directors, and conforming to superior standards of accounting and disclosure. All these are costly signals because incompetent or dishonest managers cannot mimic these signals in much the

same way an unintelligent person cannot complete higher education or PhD from a top school.

Application of Signaling quality to Spine Surgery

If we apply the same signaling quality to the spine surgical specialty, it will basically need a rigorous training and development in the field which can be completed by a competent doctor giving the message to the society through his experience, fellowships, and clinical results [4]. Such an exercise is not easy by most of us. However, it ensures a trust factor among the patients who undergo a complicated spine

surgery with lots of myths and disbeliefs among them. In addition, giving a signal of confidence in the language of such a competent surgeon could be easily made out by the patients and can take these surgeries with a lot more confidence. These repeated procedures will eventually remove all lemons in the field, building a trust factor for the specialty. I believe that this signaling quality can be replicated in most of the medical specialties, replacing the lemon principle. In the end, I would leave it up to the esteemed readers who want to take inference from this article.

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