

What causes disagreement among physicians? An exploration of customers' perception and physicians' experiential learning dynamics

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Extended Abstract

Over-utilization bias and variation in medical practices are two major contributors to suboptimal medical decisions. Practice bias and variation are common in decisions where physicians choose between a routine procedure and a more drastic measure, which is reserved for severe cases. Common explanations for bias and variation in these medical practices, including regional factors, personal traits, and financial incentives, and defensive medicine, view the problem in a static way. We do not seek to reject any of these contributing factors, but to offer an alternative and dynamic explanation. We have selected the obstetrician's decision to perform C-section or natural deliveries as the context of the problem, as practice variation and over-utilization of C-section operations are prevalent. We expand on the experiential learning model proposed by Ghaffarzadegan (2011) by adding the dynamics of physicians' reputation perceived by patients. We also explore how different levels of the three mechanisms, i.e., sensitivity of outcome to skill, conditional availability of feedback, and intensity of customers' screening, affect the outcomes of physicians' experiential learning in different medical practices.

Simulation results show that the accumulation of skill in delivery operations causes variation in practice, as physicians who repeat an operation become skillful at it and thus, grow a tendency towards the specific operation. The conditional availability of feedback causes the 'hot stove' effect, where the nature of the more drastic measure conceals mistakes in choosing that option and thus, corrective feedback on the more drastic measure does not occur. Hence, the conditionality of feedback triggers a bias towards overutilization of drastic solutions, similar to a risk-averse behavior in the physician. The combination of the two mechanisms reduces variation, however exacerbates practice bias. This is due to physicians becoming increasingly skillful in the drastic operation, as their bias towards overutilization results in an increased frequency of the operation.

The patients' screening physicians' reputation and matching their own preference plays an overall improving role. Admittedly, the customers' screening mechanism causes practice variation in the form of path dependency, i.e., the early few patients of a physician can potentially determine the rest of her career. However, in all levels of the previous two mechanisms, the addition of customers' screening and matching results in decreased bias and improved accumulative outcome.

Keywords: Experiential learning, Practice variation, Medical decision making, Customers' perception, Conditional feedback, Adaptive Sampling

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