

The Promising Contributions of Behavioral Economics to Quality Improvement in Health Care

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Quality improvement (QI) initiatives often feature real-time reminders to health-care providers of practice guidelines to encourage delivery of safe, reliable, and evidence-based services. Electronic order sets, best practice alerts, checklists, and bundles are examples of such widely used prompts. Despite many past accomplishments,^{1,2} these particular QI interventions are sometimes not readily adopted; instead, they may be met with apathy, skepticism, and opposition by clinicians for a wide variety of reasons.

Peter Pronovost, MD, PhD—a leading QI expert renowned for his work on reducing catheter-related bloodstream infections—briefly postulated that clinician motivation might be enhanced through an interdisciplinary field known as behavioral economics (BE).³ Traditional economics assumes that people typically make optimal decisions. In contrast, BE recognizes the fallibility of humans and their limits in attention, memory, judgment, and self-control.⁴ To address these shortcomings, BE features low-intensity changes to the decision-making environment to foster beneficial outcomes. These BE “nudges” are well known for improving financial behavior, such as automatically including employees in voluntary retirement savings programs but allowing them to “opt-out” of this arrangement by completing paperwork to disenroll.⁵ However, BE has recently gained attention within health care, such as enhancing patient behavior (e.g., promoting medication adherence).⁶



The present review highlights potential BE applications for QI. BE concepts from Table 1 may help address the following potential clinician concerns of QI initiatives that feature prompts of particular practice guidelines.

Clinician Concern #1: “These clinical guidelines are often unhelpful because I can not readily locate them when I need them.” The BE concept of opt-out applies here. BE suggests that QI projects should often change the status quo from opt-in (clinicians must take an active step toward a preferred behavior) to opt-out (a preferred behavior automatically occurs but clinicians are permitted to disregard this recommendation).⁵ Opt-out makes displaying the target behavior as effortless as possible. Furthermore, opt-out provides a strong signal of the suggested course of action.

QI reports have already demonstrated the benefits of an opt-out approach. Changing the default from no preselection of a medication’s dose and/or duration to the automatic preselection of guideline-based dose or duration increased the quality of prescribing practices.^{7,8} Clinicians were permitted to override this preselection when prescribing that medication.

Here is an example regarding more complex health-care tasks. BE suggests that opt-in—where practice parameters appear once clinicians perform a novel behavior such as entering a smart phrase into an electronic medical record (EMR)—is suboptimal. Instead, an opt-out approach may improve results; practice guidelines would automatically appear when clinicians perform tasks that are already part of their ordinary routines (e.g., entering a diagnostic code into an EMR). Clinicians can then choose to either follow or disregard these particular guidelines.

Clinician Concern #2: “These clinical guidelines reduce my professional autonomy.” The BE concepts of accountable justifications and the IKEA effect would be applicable.

ACCOUNTABLE JUSTIFICATIONS

Meeker et al.⁹ found that inappropriate antibiotic prescribing was reduced by asking clinicians to chart briefly through an EMR their rationale for ordering a medication (e.g., penicillin) that was incompatible with a visit diagnosis (e.g., influenza). Other health-care providers had access to this justification. Such a request may motivate clinicians

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Table 1. Behavioral Economic Concepts Relevant to Health-care QI

Concept	Definition
Opt-out	Arranging for a preferred behavior to occur as automatically as possible but allowing clinicians to override this recommendation
Accountable justifications	Asking clinicians to document rationales, particularly when making potentially questionable decisions, that are accessible by others
IKEA effect	Having front-line clinicians make relatively small changes to a practice guideline to promote local ownership and adoption
Overconfidence bias	Exaggerating the likelihood that optimal clinical care has been provided
Saliency	Increasing the vividness/distinctness of important material so that the information will be noticed by clinicians
Framing	Changing the wording or physical presentation of an idea to maximize clinicians' receptivity
Descriptive norms	Highlighting that many other clinicians already engage in the target behavior
Fairness	Appealing to clinicians' sense of equity
Reciprocity	Assisting one another (e.g., QI leaders and front-line clinicians mutually helping the other group)

to uphold their reputations for following best practices and prescribe antibiotics only when necessary. Nevertheless, these accountable justifications are not “hard stops” that prevent clinicians from making particular decisions. Ultimately, clinicians have discretion in their prescribing practices and can even document their reasons for disagreeing with particular clinical guidelines in certain situations.

THE IKEA EFFECT

This BE concept refers to people overvaluing a product for which they contributed time and effort.¹⁰ QI leaders can capitalize upon this BE idea by having front-line clinicians participate in designing reminders of practice guidelines before dissemination at a particular institution. Even if those reminders may differ little from those used at other institutions, first-hand contributions may promote a sense of ownership and ultimate adoption.¹¹

Clinician Concern #3: “Reminders of these guidelines just reflect more unnecessary clutter in my workflow. I will just ignore them.” The BE concepts of overconfidence bias and saliency can address this concern.

OVERCONFIDENCE BIAS

BE suggests that errors in probability judgments are common, including overestimation of past appropriate behavior and future success. Numerous studies have indicated that clinicians overestimated their recent utilization of best practices, from vaccination of high-risk children¹² to evidence-based assessment for Attention Deficit Hyperactivity

Disorder.¹³ Techniques for reducing overconfidence bias are not well established in the BE literature. Perhaps some clinicians might be more receptive to prompts of best practices if they receive feedback contrasting their self-perceptions of the quality of care provided to recent patients with more objective sources of information (e.g., audits of medical records, responses to standardized vignettes). Nevertheless, the existence of overconfidence bias should reassure developers of QI interventions that clinician dismissal of the need for such reminders may sometimes be unjustified.

SALIENCY

Clinicians are often inundated with information and understandably may not notice some important material. Alert fatigue suggests that clinicians typically disregard warnings that are too numerous and/or too monotonous. Therefore, increasing the saliency of key information may increase the likelihood of appropriate behavior will occur.¹⁴ In the earlier example of EMR prompts asking clinicians to justify prescribing an antibiotic for a potentially inappropriate condition,⁹ the following message was displayed on the computer screen: “If you do not enter anything in this box, “NO JUSTIFICATION FOR PRESCRIBING ANTIBIOTICS [in red type]” will be added to the patient’s medical record.” This atypical message, unusual font color, and capital letters all contribute to making this QI intervention noticeable to target clinicians relative to ordinary EMR content.

Novel visual images may also improve care. Heath and Heath¹⁵ highlighted a QI initiative in which nurses wore orange vests when dispensing inpatient medication. These visual clues signaled not only nurses to focus on the task at hand but also the other clinical staff to avoid interruptions. Nurses disliked the unattractive appearance of these vests, and other clinicians objected to the inconvenience of waiting to interact with nurses until after medication administration. However, the subsequent reduction in dispensing errors led to an eventual enthusiastic response to this QI initiative.

Clinician Concern #4: “These guidelines make me uncomfortable because they are an implicit admission of previous suboptimal care.” The BE concept of framing may help overcome this barrier. Many preferences are not fixed but may vary according to different presentations of virtually identical information. For example, a hypothetical medical treatment is deemed as less acceptable if mortality rates are presented as opposed to survival rates.¹⁶

One potential connotation of the term “quality improvement” is that clinicians previously did not deliver the best care possible. Such a notion may naturally engender feelings of defensiveness, blame, and guilt. A potential reframe is to emphasize whenever possible that past behavior was correct based upon knowledge and standards at that time.¹⁷ However, in order for current clinician behavior to be considered optimal, updated empirical results and practice guidelines should be incorporated. Another

potential reframe is to emphasize that certain aspects of best care were simply overlooked by busy clinicians. In a United Kingdom study, Halpern¹⁸ reported that framing a lack of response to a letter seeking taxes for previously undeclared income as an “oversight” subsequently helped increase revenue collection from physicians and other types of professionals.

Clinician Concern #5: “Following these practice guidelines is unrealistic for me.” The BE concept of descriptive norms can help address this concern.¹⁹ Rather than relying solely upon scientific information to persuade a decision maker, BE views social influences as holding great weight in determining someone’s behavior. Learning what others are doing may convince the target person that a particular behavior is both important and achievable.

Peer comparisons—in which a target health-care provider receives feedback on recent performance relative to a group of clinicians—has been found to improve clinical practice.^{9,20,21} A recurrent finding from the BE literature is that “local” or “provincial” norms may lead to greater change relative to global norms.^{18,22} In other words, comparing someone to a group of people with similar characteristics has greater impact than comparing someone with a larger, more dissimilar group of individuals. The more similar the peer group to the target individual, the more difficult it may be to disregard comparison data. Here is a potential application: large academically oriented institutions often initiate and implement successful QI projects. To take advantage of the impact of descriptive norms, the field of QI should seek to highlight examples of successful projects by less resource-rich health-care providers.

Clinician Concern #6: “I still need greater motivation to alter my clinical practice, given my competing priorities.” The BE concept of fairness/reciprocity is relevant to address this reaction. The importance of fairness has repeatedly been demonstrated in BE studies. In an experiment testing different messages to promote organ donor registration, the most successful approach was based on fairness: “If you needed an organ transplant, would you have one? If so, please help others [by agreeing to register].”¹⁸ In separate work, fairness was so important that study participants would often turn down money for themselves if the distribution of the free cash disproportionately favored other people. These “ultimatum task” experiments indicate that relative, not just absolute, levels of resources matter to people.²³

The potential role of fairness in promoting adoption of QI interventions is as follows. Periodically all clinicians receive health-care services themselves. When patients, they expect to receive the safest and most efficacious care possible, even if that means new QI procedures must be followed. Therefore, when roles are reversed, health-care providers may be motivated to providing optimal care when reminded about the principle of fairness. That being said, busy clinicians may be understandably frustrated by additional work expectations reflected by new clinical guidelines. To adhere to the principle of reciprocity, QI leaders should consider what responsibilities they can re-

move from front-line clinicians, such as reducing charting requirements of nonessential information.

NEXT STEPS FOR BE IN HEALTH-CARE QI

The present review offered relevant BE concepts that may assist QI health-care leaders in advancing their initiatives. BE strategies should be employed only when there is strong evidence to indicate that people would consider themselves better off in the long run as a result of being nudged.²⁴ For example, given the overwhelmingly positive empirical support for vaccinations and their highly favorable benefit to harm ratio, promoting this preventive care is often regarded as justifiable in the BE literature.²⁵ However, promoting some other types of preventive services (e.g., certain pieces of anticipatory guidance at well-visits) may not rise to a level of being “nudge-worthy.”

Two future directions are as follows. First, further evaluation is needed to determine under what circumstances BE strategies result in better clinical care. The concepts mentioned above have not been widely tested in promoting quality and safety in health care. Therefore, a more thorough understanding of the benefits and limitations of BE for QI is still needed. To further this objective, QI reports should include greater details about (1) triggers for reminders of best practices as well as (2) successful and unsuccessful strategies for motivating clinicians. The recently revised publication guidelines for Standards for Quality Improvement Reporting Excellence (SQUIRE 2.0)²⁶ may help capture this information that is relevant from a BE perspective.

Second, QI leaders are encouraged to search for successful application of BE in other fields of endeavor. BE studies in many domains—including education,²⁷ financial behavior,⁵ and energy conservation¹⁹—are often not indexed in medical literature databases. However, a familiarity with BE concepts, combined with a willingness to explore behavior change strategies in other literature, may inspire future innovative approaches for promoting health-care quality and safety.

DISCLOSURE

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