

## Clinical peer Review; A mandatory process with potential inherent bias in desperate need of reform

Husam Bader<sup>a</sup>, Mohammad Abdulelah<sup>b</sup>, Rama Maghnam<sup>c</sup> and David Chin<sup>d</sup>

<sup>a</sup>Department of Internal Medicine, Monmouth Medical Center, Long Branch, NJ, USA; <sup>b</sup>Department of Internal Medicine, University of Jordan, Amman, Jordan; <sup>c</sup>Department of Pediatrics, Monmouth Medical Center, Long Branch, NJ, USA; <sup>d</sup>Department of Internal Medicine, Presbyterian Rust Medical Center, Rio Rancho, NM, USA

### ABSTRACT

Clinical peer review, a process mandated across all hospitals in the USA, originated as a measure to protect patients by ensuring a standardized level of medical service that is provided by all practicing physicians. The process involves retrospective chart reviewing to assess the quality of patients' care provided by physicians as well as adherence to the most appropriate guidelines. The process of clinical peer review almost entirely serves its ultimate purpose in quality preservation; However, certain laws gave immunity to reviewers resulting in abuse and using the clinical peer review process for secondary gain. Some notable cases of abuse were discussed in the article, we also shed light on two forms of bias that can potentially interfere with the review process and the dreaded outcomes that come along a negative peer review. We also propose methods to overcome these biases to further standardize and improve this crucial process.

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## 1. Introduction

As data and evidence-driven professionals, physicians are struck early on by one of the uneasy harsh realities of clinical practice; *many medical decisions are made in uncertainty*. Although we assume that all medical decisions are led by established scientific facts, even a cursory review of practice patterns shows that they are not.

Due to the complex nature of medical decision making and its proneness to adverse effects and human error; an inevitable critical need for standardization emerged, this need yielded the creation of "Clinical Peer review" in the 1950s. Such process was designed to ensure that patients have access to a reliable and consistent level of medical service while trying to eliminate discrepancies in practice.

Despite the unquestionable value of peer review, it has undergone heavy criticism as well as both ethical and legal challenges over the years leading to ongoing reformation. This article sheds light on two main overlooked inert biases in the clinical peer review process; the hindsight bias and outcome bias, we also propose methods to help reduce it.

## 2. What is clinical peer review?

Clinical peer review is a process whereby a committee evaluates the quality of physicians' clinical work to ensure that prevailing standards of care are being met [1]. Today, the majority of peer review conducted across the USA occurs exclusively through retrospective

chart review via peer review committees [2]. The process is now required by The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) for hospital accreditation [3,4]. Peer review is also often triggered by substandard physician performance or questionable care as required by JCAHO [5]. Furthermore, committees can be involved in surveying other aspects of patient care which do not involve diagnosis and management, for instance, the competency framework in the state of Oregon includes factors such as Professionalism as well as Interpersonal and Communication Skills [6]

Since 2007 to this day, JCAHO changed the peer review standards by extending it to two subsets of professional practice evaluations: focused and ongoing [7]. The Focused Professional Practice Evaluation (FPPE), the format in question in this article, is used when a question arises regarding a currently privileged practitioner's ability to provide safe, high quality patient care [8].

Despite being mandated by JCAHO, the manner in which peer review is conducted varies widely across institutions. For example, the process does not mandate the review to be conducted by physicians [9]. Rather, review committees might consist of non-physician personnel including nurses and nurse practitioners, in essence, a more comprehensive approach to patient care could be assessed, however, different specialties in medicine have differing points of focus even when the final outcomes are shared.

### 3. Historical challenges and lack of standardization of peer review

In 1952, JCAHO began requiring physician peer review across all USA' hospitals [10]. Although the vast majority of the peer review processes are carried out in good faith, several setbacks have occurred, with many reported cases of abuse. During the 1980s in Oregon, one of the most notable cases of abuse of peer review for personal economic interest was the case of the vascular surgeon Dr. Timothy Patrick versus Burget, Patrick v. Burget, 486 US 94. The case gained national publicity in the medical field leading to Congress' intervention and a multimillion-dollar verdict by the USA Supreme Court in favor of Dr. Patrick against the Peer reviewed physicians and hospital [11].

Following the publicity of the aforementioned case, many physicians became hesitant to participate in peer review activities as they feared possible involvement in future litigation. Consequently, Congress introduced the Healthcare Quality Improvement act (HCQIA) legislation", which entailed expanding reviewer immunity in order to encourage physician participation in the process. The HCQIA legislation provided total immunity to reviewers and hospitals participating in peer review [12]. Unfortunately, granting reviewers total immunity has come with a new set of conflicts. There have been multiple cases published in literature of physician termination or loss of privileges solely based on peer review, despite expert testimony being in agreement with the course of treatment. A notable example is Dr. Carol Bender, an internist, who brought a lawsuit against the Maryland Suburban Hospital to the Maryland Special Court of Appeals for a breach of contract and early termination alongside defamation *via* the peer review process [1].

Another pitfall in the peer review process has been the lack of standardization. As of today, only 62% of hospitals considered their review process to be standardized [13]. Moreover, some studies reported that peer reviews are often unreliable measures of quality and have not served their intended role in quality improvement [14,15].

### 4. The present consequences of peer reviews?

Regardless of the authenticity of a negative peer review, the consequences are potentially devastating. First, peer reviews are 'unappealable' and physicians cannot request for re- evaluation by another anonymous expert. Historic attempts to fight the consequences of peer reviews by physicians were unfruitful in court due to the HCQIA legislation. Examples of

notable cases that gained the attention of the medical community was the case of Dr. Susan Meyer [16], who was suspended after a patient she treated was found dead at the hospital premises two hours later. Dr Meyer's complaints were dismissed as they were barred by the HCQIA.

Secondly, the impact of conducting a 'peer review' can be potentially devastating regardless of the conclusion of the investigation; hospitals are allowed to precedingly report a physician while under peer review investigation for possible incompetence or improper professional conduct [17].

Thirdly, since hospitals are required to report any adverse actions to the NPDB (National Practitioner Data Bank), sham peer reviews rely heavily on physicians' fear of being reported. Given that physicians reported to the NPDB face significant hurdles when seeking employment, licensure, and credentialing [18].

Dr. William Parmley, the past Editor-in-Chief of the Journal of the American College of Cardiology, has been vocal about the problematic unjust targeting of physicians by sham peer review and describes these scenarios as being far more common than is appreciated [19]. An estimated thirty-three lawsuits were brought to USA courts claiming sham peer review between 2003 and 2007 [20]. Further estimates put the number of sham peer reviews occurring at upwards of 10% of cases reviewed [21].

### 5. A look into the future: inert cognitive bias in peer review

The call for reform and standardization of the peer review process has been a work in progress for years. Standardization would limit political and personal profitability from dishonest reviews. Besides standardization, light needs to be shed on less obvious inherent shortcomings that have been proven to be problematic in decision making; clinical bias.

Cognitive bias can be defined as a mistake in reasoning, evaluating, remembering, or other cognitive process, often occurring as a result of holding onto one's preferences and beliefs regardless of contrary information. Cognitive biases may lead to diagnostic inaccuracies and medical errors resulting in mismanagement or inadequate utilization of resources, over 32 types of cognitive biases have been well described in literature [22]

The 'framing effect', 'overconfidence', and 'tolerance to risk/ambiguity' were the most studied cognitive biases. However, methodological limitations make it difficult to provide an accurate estimation of the true prevalence [23]

A search in MEDLINE and the Cochrane Library databases for relevant articles on cognitive biases

from 1980 to 2019 yields 133 publications, comprising 6810 physicians included in 20 studies where at least one cognitive factor considered using case-vignettes or real scenarios.

One example is a study published including 71 residents, fellows, and attending pathologists who evaluated 2,230 skin biopsies with a diagnosis confirmed by a panel of expert pathologists.

Information biases, anchoring effects, and the representativeness bias were associated with diagnostic errors in 51% of 40 case-scenarios (compared to 16.4% case-scenarios leading to incorrect diagnoses not related to cognitive biases ( $p = 0.029$ ) [24].

As clinical peer review entails examining a set of events in a clinical context with the ultimate endpoint being the evaluation of clinical appropriateness, this process undeniably requires medical judgment and reasoning. This virtual form of 'clinical judgment' is no different than everyday clinical practice and is inevitably subjected to hindsight bias and outcome bias.

Hindsight bias is the tendency for people with outcome knowledge to exaggerate the extent to which they would have predicted the event beforehand, while outcome bias refers to the influence of outcome knowledge upon evaluations of decision quality outweighs the evaluations and process which lead to the outcome [25]. Caplan and associates found an inverse relationship between the severity of outcome knowledge and physician judgments on the appropriateness of care. They expressed concern about the use of implicit judgments by designated experts when conducting retrospective analysis [26].

Baron and Hershey [27] conducted five experiments on the evaluation of medical and monetary decisions. They found that outcome information consistently influenced evaluations of decision quality. Russo and Schoemaker note that many decision makers have difficulty improving their decision-making processes because they irrationally judge everything based on outcomes [28].

## 6. Reducing hindsight and outcome bias

Eliminating hindsight and outcome bias is challenging. Fischhoff found that subjects were frequently unable to ignore the stated outcomes, even when instructed to do so [29].

Slovic and Fischhoff suggested two techniques to reduce hindsight and outcome biases, one is to withhold announcement of the outcome until reviewers have given their own estimates or predictions regarding impending outcomes, and another is by asking hindsight subjects to state all the reasons why potential diagnoses might be correct [30]. When reviewers were instructed to write down their own views, assumptions, uncertainties and tradeoffs, they were

better able to appreciate the complexity of the decision-making process, which is often riddled with changing variables and unknowns.

We propose randomly blinding outcomes for a select number of cases subjected to clinical peer review. This allows a more interactive and realistic approach to a clinical vignette. By simulating investigators to consider how other possible outcomes might have occurred and how past events may have turned out differently, investigators become less anchored to the outcome which otherwise dominates the reconstruction of the clinical scenario.

## 7. Discussion

Physicians cannot predict the course of a disease or know that a treatment will yield a cure with absolute certainty. Rather, physicians make decisions under uncertainty and under the constraints of limited time. When the diagnosis is uncertain, the goal is to establish a differential diagnosis and render empiric treatment with the intent of maximizing therapeutic value and minimizing adverse outcomes.

Clinical peer review is an essential process in healthcare. Under the current laws, a physician's medical decision can be peer reviewed and investigated at any given time. Hospitals can terminate physicians and report physicians to the NPDB while being investigated. Due to the potential impact and consequences of peer review, we believe reviewers need to be conscientious of the biases that can involuntarily influence one's decision and invest conscious effort into producing a fair unprejudiced clinical conclusion. Those efforts will further help uphold this important process.

Reviewers and clinicians are encouraged to promote a culture of blinding outcomes when presented with a case to evaluate, this helps reviewers work through a case as clinicians rather than distant critics. This technique limits the delusional clarity of simply backtracking someone else's decision landmarks and progressively working backwards with a known outcome.

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