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

Clinical peer review, a process that is mandated across all hospitals in the United States originated as a measure to protect patients by ensuring a standardized level of medical service is provided by all practicing physicians. The process involves retrospective chart reviewing to determine whether the clinical outcomes after a physician’s interventions were acceptable or not. Certain laws gave immunity to reviewers resulting in abuse and using the clinical peer review process for secondary gain. Notable cases of abuse were discussed in the article.

Retrospective chart review has its downsides as well, we discuss two forms of bias which were proven to negatively intervene with the review process and the dreaded outcomes that come along a negative peer review. We also propose methods to overcome these biases.

**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.   
  
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.  
  
**What is Clinical peer review?**  
Clinical peer review is a process whereby doctors evaluate the quality of their colleagues’ clinical work to ensure that prevailing standards of care are being met [1]. Today, the majority of peer reviews conducted across the United States 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].

Since 2007 to this day, JCAHO changed the peer review standards by extending it to two subsets of professional practice evaluations: focused and ongoing [6]. 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 [7].   
  
Despite being mandated by JCAHO, the manner in which peer reviews are conducted varies widely across institutions. For example, the process does not mandate the review to be conducted by physicians [8]. Rather, review committees might consist of non-physician personnel including nurses and nurse practitioners.

**Historical challenges and lack of standardization of Peer Review**  
In 1952, JCAHO began requiring physician peer review across all United States’ hospitals [9]. the peer review process has since suffered several setbacks throughout its tenure 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’ interference and a multimillion-dollar verdict by the United States Supreme Court in favor of Dr. Patrick against the perpetrating physicians and hospital [10].  
  
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 “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 [11]. Unfortunately, granting reviewers total immunity has come with a new set of conflicts. There have been multiple cases published in literature of physicians’ termination or loss of privileges solely based on peer review, despite expert testimony being in agreement with the course of treatment.

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 [12]. Moreover, some studies reported that peer reviews are often unreliable measures of quality and have not served their intended role in quality improvement [13][14].  
  
  
**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 [15].  
  
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 [16].  
  
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 [17].  
  
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 [18]. An estimated thirty-three lawsuits were brought to United States courts claiming sham peer review between 2003-2007 [19]. Further estimates put the number of sham peer reviews occurring at upwards of 10% of cases reviewed [20].  
  
**A look into the future: Inert Cognitive Bias in Peer Review**  
The call for reform and standardization of the process of peer review has been a work in progress for years. Standardization would limit political and personal profitability from dishonest reviews. Besides standardization, the authors would like to shed light on less obvious inherit shortcomings that have been proven to be problematic; hindsight and outcome biases.  
  
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 judgement and reasoning. This virtual form of “clinical judgement” 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 [21].  
  
Baron and Hershey [22] 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 [23].

**REDUCING HINDSIGHT AND OUTCOME BIAS**   
Eliminating hindsight and outcome biases challenging. Fischhoff found that subjects were frequently unable to ignore the stated outcomes, even when instructed to do so [24].  
  
Slovic and Fischhoff [25] 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. When reviewers were instructed to write down their own views, assumptions, uncertainties and trade offs, 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.

**Discussion**  
Physicians cannot predict the course of a disease or know that 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.   
  
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 reviews, 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.  
  
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 back tracking someone else’s decision landmarks and progressively working backwards with a known outcome.

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