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IMPACT OF IMPLEMENTING PERFORMANCE-BASED INCENTIVE PROGRAMS ON IMPROVING HEALTHCARE QUALITY AND OUTCOMES

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Abstract

Many nations have implemented performance-based incentives to address increasing expenses and concerns over safety, quality, fairness, and affordability in healthcare. These incentives are designed to target both healthcare institutions and people. The impact of these initiatives has yielded inconclusive evidence. It is still uncertain how successful techniques, with different designs and levels of size compared to provider remuneration, are in motivating individual-level performance. This paper examines the existing data about the efficacy of individual-level performance-based incentives for healthcare in Organisation for Economic Co-operation and Development (OECD) countries. These countries are ideally positioned to establish, monitor, and evaluate programs that use performance-based incentives. We specify the circumstances in which penalties or incentives, in relation to the pursuit of gains, the avoidance of losses, and the heightened societal pressure to change behaviors, may be more successful. We have discovered that programs mostly use positive reinforcement mechanisms, with a somewhat higher number of bonus incentives compared to incentives based on payment per output or result attained. Upon comparing the results obtained from negative reinforcement techniques with positive reinforcement techniques, we have discovered a greater body of data supporting the effectiveness of positive reinforcement methods in enhancing the performance of healthcare workers. In general, slightly more than half of the studies indicated favorable effects, highlighting the need of careful consideration in the development and implementation of performance-based incentive programs.

Keywords: Pay for performance, Performance-based rewards, Healthcare professionals, Organisation for Economic Co-operation and Development (OECD).

1. Introduction

Internationally, there is an increasing focus on various approaches to improve health outcomes by addressing subpar or ineffective performance of healthcare practitioners within health systems [1]. Some of these initiatives try to fill knowledge and capacity deficiencies, while others target improvements in the work environment for providers. However, a third

category of initiatives focuses on enhancing the level of effort exerted by providers in carrying out their task [2]. Health care workers (HCWs) are those who possess specialized training or expertise and provide care and services to individuals who are ill or suffering. The skilled professionals included in this category consist of physicians, nurses, midwives, paramedics, medical or nursing students, and laboratory technicians.

Performance-based incentives (PBI) are a specific intervention designed to target healthcare workers (HCWs) and solve the issue of insufficient motivation to allocate effort towards public priority areas. Under performance-based incentive (PBI) schemes, healthcare professionals are given incentives, which may be financial or non-financial, depending on their achievement of particular performance measures and objectives. These measurements and targets are often related to clinical quality, resource usage, and patient outcomes [3].

Examples of interventions include implementing incentive schemes such as offering bonus payments for each kid who is completely vaccinated, organizing health and wellness retreats for teams that fulfill organizational objectives, or delivering quarterly bonus checks based on the attainment of quality indicators. PBI treatments aim to influence the behavior of healthcare workers via the use of associative learning processes. Operant conditioning refers to the process by which intentional conduct interacts with the environment to produce outcomes [80]. In this particular situation, individuals acquire knowledge or modify their actions by establishing a connection between a certain conduct and its resulting outcome. By using reinforcement, the occurrence of a behavior is heightened, whilst punishment diminishes the occurrence of the behavior.

The member countries of the Organisation for Economic Co-operation and Development (OECD), who are democratic nations that advocate for free-market economies, have implemented several performance-based incentive (PBI) systems in the field of healthcare. This cohort of 38 nations is comparatively affluent, constituting over 50% of the worldwide gross domestic product (GDP) [4]. At the same time, these nations are dealing with the challenge of aging populations, as people are living longer and fertility rates are decreasing. This has resulted in increased public spending, a decline in the expansion of the workforce, leading to a scarcity of workers, and decreased economic growth [5].

Healthcare systems in OECD nations are under strain due to increasing expenses of medical treatment, resistance to paying higher rates, and mounting worries about safety, quality, fairness, and affordability. As a reaction, most OECD nations have now formulated and executed national pay for performance (P4P) systems, which are a kind of performance-based incentive (PBI) that relies on financial rewards. These systems are aimed at both facilities and persons. However, the results of these attempts have been inconclusive, as shown by many sources [6], [7], [8]. A 2016 research focused on OECD nations revealed that Pay-for-Performance (P4P) initiatives in the inpatient sector of 14 OECD countries had only modestly beneficial outcomes [9]. Similarly, a recent comprehensive analysis of pay-for-performance (P4P) initiatives in low and medium income nations found inconclusive results, especially when accounting for the extra resources implemented by P4P programs [10].

Only a limited number of studies have focused only on individual-level incentives. Instead, these studies often examine the overall impact of a Pay-for-Performance (P4P) program on the whole company, including teams, departments, and people. Nevertheless, it is essential to have a better understanding of the specific impact of P4P programs on individual healthcare workers, while disregarding any indirect effects that may be transmitted from a P4P intervention targeting non-people to individuals. Moreover, comprehending the connection between direct effect and the overall impact of the intervention enhances our knowledge of the infectious spillover effect that occurs when people influence a group or hospital. The effectiveness of different financial pay-for-performance (PBI) strategies, with varying designs and magnitudes relative to provider salary, in incentivizing individual-level performance is still unclear. Additionally, it is not known under what conditions the specified negative and positive reinforcements in PBI strategies are effective in achieving desired outcomes [11-14].

This research seeks to evaluate the existing data about the efficacy of individual-level financial performance-based incentives (PBIs) in the context of healthcare. Our main objective is to determine the specific circumstances in which penalties or incentives are more likely to be successful, particularly in relation to pursuing gains, avoiding losses, and facing increasing societal pressure to change behaviors. Gaining a comprehensive grasp of which tactics are beneficial in improving healthcare in different situations may help decision-makers develop and execute successful policies to achieve the objectives of healthcare systems.

2. The effects of performance-based incentive (PBI) programs on healthcare worker (HCW) performance

This systematic review provided a comprehensive analysis and summary of the existing literature on PBI interventions in OECD member nations. We have selected research that investigates the efficacy of incentives at the individual level. The literature evaluation suggests that PBI has the potential to enhance the process of care measures and health outcomes in some circumstances. However, the overall findings are inconclusive. Approximately 33% of our investigations indicated that there was no improvement in results, despite a substantial financial expenditure in adopting PBI programs to enhance performance.

Our analysis reveals significant variation in the delivery structure of PBI. Several research included in our evaluation examined the influence of this structural heterogeneity on the efficacy of incentive systems. In their study, Chung et al. [15] discovered that the frequency of payments had no impact on doctors' responsiveness to the intervention. In a study done by Petersen et al. [16], a randomized control trial was carried out to evaluate the effectiveness of individual-level financial incentives with practice-level incentives. The study found that only the incentives provided at the individual-level led to better health outcomes.

In their study, Kantaveric and Kralj [17] discovered that doctors who operate under a blended capitation model exhibit greater responsiveness to a PBI program compared to physicians who operate on an improved fee-for-service model. Asch et al. [18] discovered that only shared incentives were effective in significantly reducing levels of low-density lipoprotein cholesterol (LDL-C) in patients with high cardiovascular risk. Comparisons between physician

financial incentives, patient incentives, and shared physician and patient incentives revealed that only shared incentives achieved significant control over LDL-C levels. Undoubtedly, the degree to which desired results need changes in both patient and practitioner conduct is a crucial aspect to consider while creating PBIs.

Moreover, incentives might potentially divert effort away from areas of care that are not encouraged. According to Gravelle [19], incentive systems may also result in the manipulation of exception reporting, where some practices may intentionally remove eligible patients, such as those who cannot be provided medication owing to side-effects or contraindications, from being included in the indicators. In the primary care systems in the UK, Fleetcroft et al. [20] found that the financial incentives were not always designed to maximize health improvements. This led to the prioritization of clinical activities that were just somewhat effective, rather than more beneficial activities that had lower incentives.

Similarly, Guthrie [21] discovered that a program designed to enhance competition among health plans for Medicaid beneficiaries, with a focus on performance, not only failed to enhance the quality of treatment but also shown detrimental effects on some areas of care that were not incentivized. The recent systematic evaluation of pay-for-performance (P4P) in low and medium income settings did not find widespread reports of negative unintended consequences. However, it is possible that the design of P4P programs, which usually aim to improve a broad variety of important services, may have minimized this risk [10].

Several studies have recognized the possibility of PBI programs exacerbating existing inequalities in healthcare provision, particularly in cases where doctors have the ability to reject patients from performance programs. Patients who are not included in performance programs are more likely to originate from disadvantaged groups and are less likely to fulfill treatment objectives [15-18]. In addition, Kiran et al. [22] discovered that discrepancies in cancer screening rates based on neighborhood income in Ontario continued to exist after the implementation of financial incentives. Additional research provided more specific information, including the examination of gender [23,24], the identification of selection bias, and the analysis of other important features of populations included in incentive programs.

Nevertheless, Petersen et al. [25] discovered that incentives aimed at enhancing blood pressure control did not result in risk selection among black patients, while Puyat and Kazanjian [23] determined that incentives had no impact on existing gender disparities in the utilization of counseling/psychotherapy sessions. In a study conducted by Bhalla [26], it was shown that improvements were seen in the treatment of patients with heart failure, independent of their ethnic demography. However, the study specifically noted that the gains were more notable among Hispanic/Latino patients and those who preferred the Spanish language. PBI initiatives seem to have little impact on the existing health care inequities.

The results reflect specific contexts, compensation plans, and healthcare systems, leading to significant variation that restricts the applicability of these findings. During the initial stages of our review, we identified several descriptive studies that focused on important characteristics of PBI interventions design. These studies examined the influence of factors such as the existing

high-value care culture, the impact of patient behaviors on compensation and provider-patient relationships, and the effect of prior prescribing compliance or starting level of indicators on the success of PBI. Nevertheless, these investigations are beyond the scope of our systematic review. It is crucial to consider the findings of these studies when developing performance incentive programs, and future research should thoroughly investigate these matters. In addition, healthcare workers (HCWs) who offer essential services in the healthcare systems, apart from doctors, such as nurses, especially those who provide primary and chronic disease care, can have a significant influence on the quality of care and health outcomes. However, these HCWs have not been the main focus of the schemes identified in our review so far.

When contemplating the implementation of a PBI intervention, it is important for decision makers to acknowledge that, within the context of OECD nations, there exists a greater body of data supporting the effectiveness of positive reinforcement techniques as opposed to negative reinforcement. There is data indicating that PBIs may have a greater influence on preventive and testing techniques. This suggests that decision makers may use a PBI intervention in this area to enhance the quality of care. Based on our analysis, about half of the studies we reviewed showed positive effects of PBI. This indicates that decision makers should first conduct pilot tests, implement the intervention on a smaller scale, make necessary adjustments, and improve PBI interventions to ensure they are suitable, context-specific, and effective before implementing them on a large scale. Instead of universally adopting a predetermined best remedy, it is important to evaluate if a particular intervention will result in individuals attempting to acquire benefits or avoiding losses in the specific healthcare situation.

3. Summary

This article classified research on the effects of performance-based incentive (PBI) programs on healthcare worker (HCW) performance and assessed the evidence for individual-level performance-based incentives in countries that are members of the Organisation for Economic Co-operation and Development (OECD). Using a behavioral psychology framework, we classified the PBI programs in our review into four distinct groups based on reinforcement. These groups include negative reinforcement for individual-level behavior, either per output/outcome or overall targets, as well as positive reinforcement for individual-level behavior, either per output/outcome or overall targets. Overall, there was a certain degree of uncertainty about the specifics of incentive activities, and several research lacked consistent findings. However, we made an effort to gather organized information wherever feasible and analyzed odds ratios for comparison purposes. Our research has shown that PBI programs that use positive reinforcement techniques are mostly present in OECD nations.

These programs tend to provide somewhat greater bonus incentives compared to payment per output or result attained incentives. Upon comparing the results of employing negative reinforcement techniques with positive reinforcement techniques, we have discovered a greater abundance of data supporting the effectiveness of positive reinforcement methods in enhancing the performance of healthcare workers. In general, somewhat more than 50% of the studies showed beneficial effects, highlighting the need of careful planning and implementation of PBIs.

Furthermore, it is important to note that the majority of studies are specialized to certain contexts. Additionally, there is sometimes a lack of information describing the context in which the intervention took place and the metrics used to assess the process, such as whether the intervention resulted in gain-seeking or loss aversion behavior. Future research should thoroughly delineate the setting in order to facilitate cross-study comparability, extraction of information, and replication of interventions.

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