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Letter to the Editor

Implementation science for quality improvement: optimizing post-cesarean blood tests

Sir,

Quality improvement (QI) and implementation science (IS) are distinct yet interrelated fields with a shared goal of enhancing healthcare quality.[1,2] However, applying Implementation Science within QI is crucial, as it systematically aims to accelerate the pace, enhance the effectiveness, and amplify the ultimate impact of both improvement initiatives and their implementation.[3]

In a recent study, we read with great interest the work by Khaikin et al 'eliminating routine maternal blood work after cesarean birth: a QI project.'[4] This QI study introduces an intervention model based on the PDSA cycle, which involves modifying the electronic order system, establishing targeted testing criteria, and combining clinician education, aiming to reduce low-value testing while maintaining effective monitoring for severe anemia. However, when analyzed through the lens of implementation science, certain aspects of this QI project remain to be addressed.

Implementation Science aims to systematically examine the factors influencing the adoption and sustainability of evidence-based practices and to develop corresponding strategies for their effective and sustained implementation in real-world settings.[5] However, the effectiveness of this QI project was limited due to the lack of systematic guidance from implementation science. Guided by the principles and pathways of implementation science, we analyze and discuss the project from the following three perspectives.

First, from the perspective of implementation strategy design. In this study, a uniform strategy of monthly meetings and email notifications was employed, which lacks specificity. In other words, this implementation strategy may not have included tiered training designed for healthcare professionals'varying levels and experience, potentially diminishing the effectiveness of the training. Therefore, we contend that the critical lack of tailoring of this core strategy to the target group (healthcare professionals) could hinder its long-term sustainability.

Second, from the perspective of implementation fidelity. In implementation science, measuring and reporting fidelity is crucial as it determines whether the intervention is delivered as intended.[6] However, this study focused solely on overall testing rates and anemia detection rates but lacked monitoring of the "order compliance rate metric. This omission means physicians cannot receive timely feedback on their own adherence, such as whether they missed ordering tests for indicated patients. Consequently, in addition to the overall outcomes, measuring and reporting the key process indicator of order compliance rate is essential.

Third, from the perspective of implementation sustainability. Both QI and implementation science emphasize sustainability, as QI relies on the consistent execution of correct strategies to ensure lasting gains.[7,8] However, this project did not integrate the improvement outcomes into departmental quality control metrics or link them to healthcare professionals' performance evaluations, potentially lacking long-term incentives. Therefore, this omission may jeopardize the project's long-term maintenance in the future, risking a regression to prior practices.

Based on the above analysis, we propose the following recommendations:

First, in QI projects, researchers should prioritize the scientific design of implementation strategies, consider the tailoring of these strategies, and specifically optimize strategy development by designing tiered training programs.

Second, strengthen implementation fidelity management. It is essential to measure and report the core indicators of the QI initiative and to establish a monitoring and feedback mechanism. This provides healthcare professionals with objective, timely data as a basis for adjusting their practice.

Third, establish a long-term mechanism for QI. QI projects must emphasize sustainability. Linking the outcomes of QI to physician performance evaluation and institutionalizing these results as stable, systematic outcomes can ensure that effective practices are consistently applied.

Daren Zhao*

Faculty of Social Sciences and Humanities, Mahidol University, Salaya, Nakhon Pathom, Thailand

***Correspondence to**
Dr. Daren Zhao,
E-mail: cdzhaodaren@163.com

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