

# The Intersection of Clinical Quality Improvement Research and Implementation Science

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The Institute of Medicine brought much-needed attention to the need for process improvement in medicine with its seminal report *To Err Is Human: Building a Safer Health System*, which was issued in 1999, leading to the quality movement's call to close health care performance gaps in *Crossing the Quality Chasm: A New Health System for the 21st Century*.<sup>1,2</sup> Quality improvement science in medicine has evolved over the past 2 decades to include a broad spectrum of approaches, from agile improvement to continuous learning and improvement. Current efforts focus on Lean-based process improvement along with a reduction in variation in clinical practice to align practice with the principles of evidence-based medicine in a patient-centered approach.<sup>3</sup> Further, the definition of quality improvement under the Affordable Care Act was framed as an equitable, timely, value-based, patient-centered approach to achieving population-level health goals.<sup>4</sup> Thus, the science of quality improvement drives the core principles of care delivery improvement, and the rigorous evidence needed to expand innovation is embedded within the same framework.<sup>5,6</sup> In clinical practice, quality improvement projects aim to define gaps and then specific steps are undertaken to improve the evidence-based practice of a specific process. The overarching goal is to enhance the efficacy of the practice by reducing waste within a particular domain. Thus, quality improvement and implementation research eventually unify how clinical practice is advanced concurrently to bridge identified gaps.<sup>7</sup>

System redesign through a patient-centered framework forms the core of an overarching strategy to support system-level processes. Both require a deep understanding of the fields of quality improvement science and implementation science.<sup>8</sup> Furthermore, aligning clinical research needs, system aims, patients' values, and clinical care give the new design a clear path forward. Patient-centered improvement includes the essential elements of system redesign around human factors, including communication, physical resources, and updated information during episodes of care. The patient-centered improvement design is juxtaposed with care planning and establishing continuum of care processes.<sup>9</sup> It is essential to note that safety is

rooted within the quality domain as a top priority in medicine.<sup>10</sup> The best implementation methods and approaches are discussed and debated, and the improvement progress continues on multiple fronts.<sup>11</sup> Patient safety systems are implemented simultaneously during the redesign phase. Moreover, identifying and testing the health care delivery methods in the era of competing strategic priorities to achieve the desirable clinical outcomes highlights the importance of implementation, while contemplating the methods of dissemination, scalability, and sustainability of the best evidence-based clinical practice.

The cycle of quality improvement research completes the system implementation efforts. The conceptual framework of quality improvement includes multiple areas of care and transition, along with applying the best clinical practices in a culture that emphasizes continuous improvement and learning. At the same time, the operating principles should include continuous improvement in a simple and continuous system of learning as a core concept. Our proposed implementation approach involves taking simple and practical steps while separating the process from the outcomes measures, extracting effectiveness throughout the process. It is essential to keep in mind that building a proactive and systematic improvement environment requires a framework for safety, reliability, and effective care, as well as the alignment of the physical system, communication, and professional environment and culture (**Figure**).

In summary, system design for quality improvement research should incorporate the principles and conceptual framework that embody effective implementation strategies, with a focus on operational and practical steps. Continuous improvement will be reached through the multidimensional development of current health care system metrics and the incorporation of implementation science methods.

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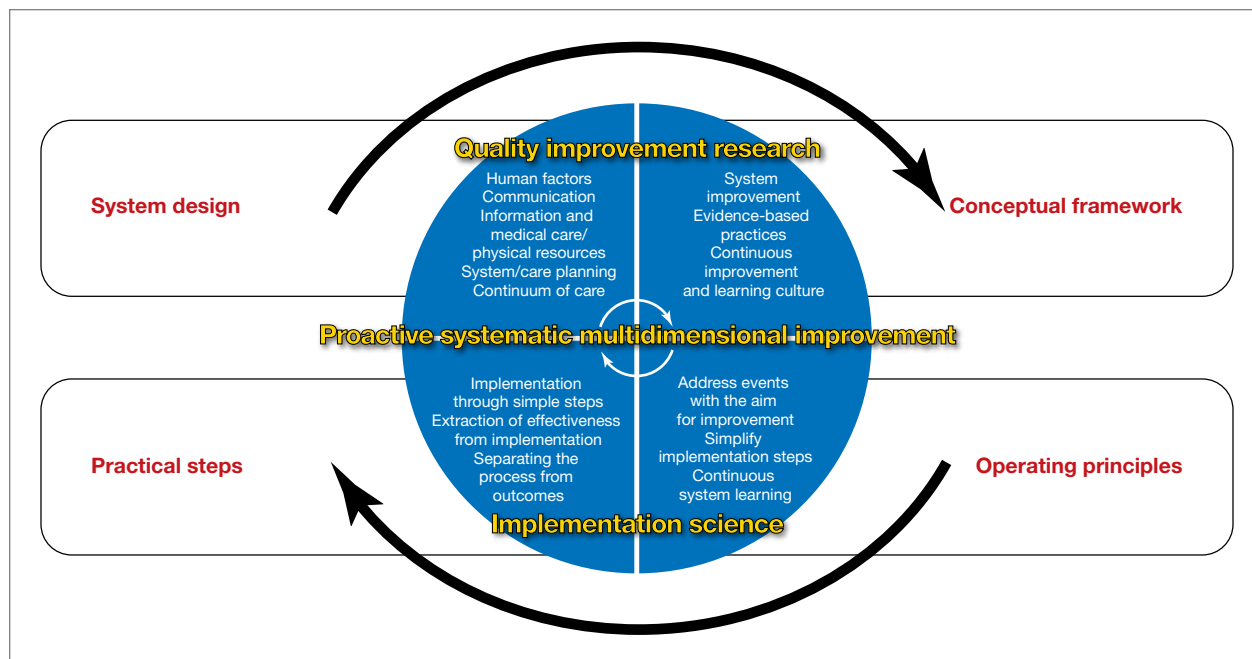


Figure. The intersection of clinical quality improvement research and implementation science

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