

# Does quality improvement improve patients' health? A systematic review of measures of effect used in PDSA projects

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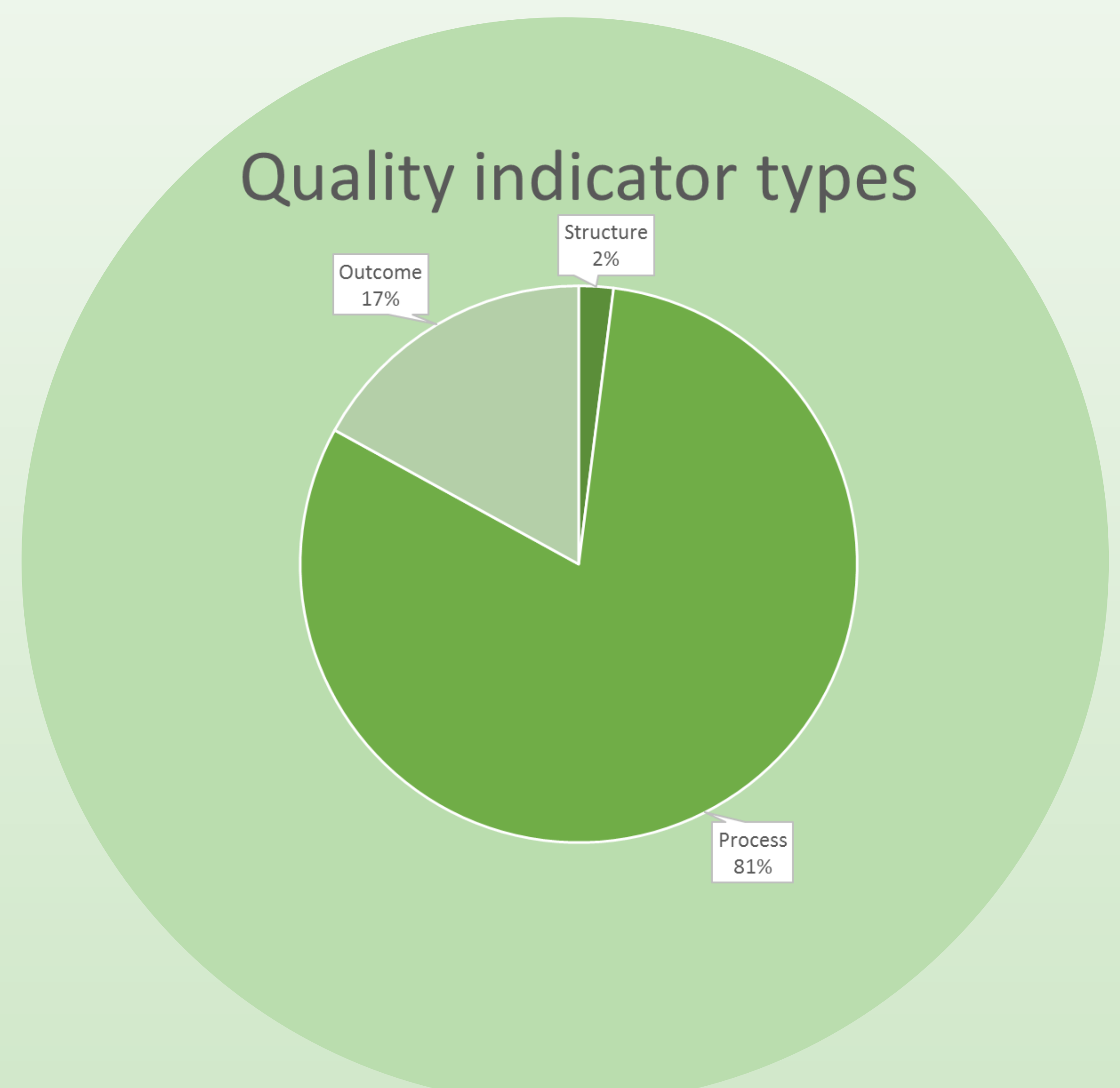
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**INTRODUCTION:** Quality improvement is an inherent part of modern healthcare systems worldwide, used for the continuous advancement in effectiveness and safety. Amongst other approaches, the plan-do-study-act (PDSA) method, a four-step iterative method, is widely used for testing and implementation of quality-improving interventions in health care despite a poor evidence of its effectiveness. Accepting the premise that the underlying purpose of improvements in health care is to improve patients' health as suggested by, amongst others, the American National Academy of Medicine, the data measurements used to assess the impact of quality improvement projects, consequently, ought to reflect how they eventually impact patients' health.

**OBJECTIVES:** The purpose of the present study is to review recently published PDSA projects to investigate how the effect of quality improvements are being measured, and if the authors provide scientific evidence that their choice of effect measure, i.e. the quality indicator, is associated with patients' health.

**METHODS:** The basis of the present study was a systematic review of studies on PDSA quality improvement projects published in 2015 - 2017. For all identified papers, the primary quality indicators were categorized in accordance with Donabedian's three definitions of dimensions of quality, i.e., structure, process, and outcome indicators. Secondly, it was assessed if the authors of the studies reported the applied quality indicator as being evidence-based, i.e. whether they were associated with patient-relevant outcomes. In addition, adherence to the SQUIRE guidelines as reported in the studies was assessed.

**RESULTS:** In all, 54 studies were included for assessment. One study was excluded, as reporting of any quality indicators was absent. The results from the assessment of whether authors identified the applied quality indicator as being an evidence-based indicator showed that only in four studies, the authors reported them as such. Reporting in adherence to SQUIRE guidelines was identified in two studies.



**CONCLUSIONS:** Process indicators, rather than health-related outcome measures, appear to be used most often in quality improvement projects applying the PDSA method. Evidence-based indicators were only applied in four studies. In general, the quality indicators were very heterogeneous causing incomparability of results. Overall, this challenges the ability to show if, and how, interventions actually affect patients' health. Enhancement of the validity of the present results calls for an increase in the consistent and systematic reporting of quality improvement interventions.

