

Effect of Lean Redesigns on Time Working Among Primary Care Physicians

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Background

As primary care continues to face high patient demand and provider burnout, health systems are increasingly turning to interventions that improve work efficiency. While research points to the effectiveness of Lean methodology, few studies examine its impact on the amount of time physicians spend engaged in either direct or indirect patient care activities. We used time-stamped EHR data to re-construct daily physician time working over the course of six years. With these longitudinal data, we assessed impacts of Lean on physician work patterns in a large ambulatory care delivery system.

Methods

This study was based on EHR capture of 15 million daily transactions among 316 primary care physicians over six years. We used a stepped wedge study design and interrupted time series analysis to examine effects of Lean redesigns on daily physician work time. Redesigns included standardizing equipment and patient education materials in all exam rooms, co-locating physician and medical assistant (MA) dyads in a shared workspace, and creating new workflows for care teams. These workflows included care team huddles, agenda setting by MAs at the start of patient visits, and joint management of the electronic inbox.

Results

We found a 6.6% reduction in the amount of time that physicians spent in the EHR each day after the last patient visit ($p < 0.001$). Additionally, there was a 7.4% decrease in hours that physicians continued to work in the clinic or remotely each day, beyond the time spent caring for patients during office visits ($p < 0.001$). These decreases were observed immediately following the introduction of Lean redesigns, and were sustained over a continuous 3-4 year period following Lean intervention. We found no change in number of hours that physicians spent caring for patients during scheduled office visits.

Conclusion

Findings align with previous research on Lean efficiencies in primary and specialty care. Specifically, we found the most benefit in the alleviation of physician time spent on indirect patient care and administrative duties. A lack of observed impact on daily hours spent in office visits suggests that Lean did not adversely impact time allocations for providing direct patient care.