

## **Does Clinical Guidelines Affect Healthcare Quality and Populational Health: Quebec Colorectal Cancer Screening Program**

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**Abstract :** In Quebec, colonoscopies volumes have continued to rise in recent years in the absence of effective monitoring mechanism for the appropriateness and the quality of these exams. In 2010, November, Quebec Government introduced the colorectal cancer-screening program in the objective to control for volume and cost imperfection. This program is based on clinical standards and was initiated for first group of institutions. One year later, Government adds financial incentives for participants institutions. In this analysis, we want to assess for the causal effect of the two components of this program: clinical pathways and financial incentives. Especially we assess for the reform effect on healthcare quality and population health in the context that medical remuneration is not directly dependent on this additional funding offered by the program. We have data on admissions episodes and deaths for 8 years. We use multistate model analog to difference in difference approach to estimate reform effect on the transition probability between different states for each patient. Our results show that the reform reduced length of stay without deterioration in hospital mortality or readmission rate. In the other hand, the program contributed to decrease the hospitalization rate and a less invasive treatment approach for colorectal surgeries. This is a sign of healthcare quality and population health improvement. We demonstrate in this analysis that physicians' behavior can be affected by both clinical standards and financial incentives even if offered to facilities.

**Keywords :** multi-state and multi-episode transition model, healthcare quality, length of stay, transition probability, difference in difference

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