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Colonoscopy resource availability and colonoscopy utilization in Ontario, Canada

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Objectives

Evidence of long wait times for colonoscopy and regional variations in colonoscopy utilization have raised concerns that the availability of colonoscopy resources may be insufficient to meet current needs. This study described colonoscopy resource availability in Ontario, Canada, evaluated regional variations in colonoscopy resource availability and utilization, and examined the association between colonoscopy resource availability and colonoscopy utilization.

Approach

This is a population-based cross-sectional study of colonoscopy resource availability in Ontario, Canada from 2007 to 2013 using linked administrative health databases from the Institute for Clinical Evaluative Sciences (ICES). We defined the catchment areas for colonoscopy resources using physician networks that were built upon existing patient flow patterns, with comparisons to observed colonoscopy patient travel patterns to ensure the networks reflected colonoscopy referral patterns in the province. Colonoscopy physicians were identified from physician billing data. Network-level colonoscopy availability was measured in terms of physician density, specialty, and quality, use of private colonoscopy clinics, and distance that patients travel for colonoscopy. Network-level age- and sex-standardized colonoscopy utilization rates were calculated for 2007 to 2013. Associations between colonoscopy resource availability and colonoscopy utilization were analyzed using Spearman's rank correlation.

Results

The availability of colonoscopy resources in Ontario increased between 2007 and 2013. Physician density increased from 8.7 full-time equivalent (FTE) physicians per 100,000 residents in 2007 to 9.4 FTE per 100,000 residents in 2013. The propor-

tion of colonoscopy physicians who achieved the recommended colonoscopy completion and polypectomy rates increased from 60% to 77%, and 28% to 53%, respectively. Use of private colonoscopy clinics also increased. In 2007, 21% of colonoscopies were completed in private clinics, and by 2013, that proportion increased to 30%. Across Ontario, we observed strong geographic variation in these measures of colonoscopy resource availability as well as in the utilization of colonoscopy. Colonoscopy utilization was positively correlated with physician availability ($r=0.48$, $p=0.001$), physician quality ($r=0.6$, $p<0.0001$) and use of private clinics for colonoscopy ($r=0.5$, $p=0.001$).

Conclusion

The availability of colonoscopy resources improved in Ontario between 2007 and 2013. However, the geographic variation in resource availability and findings that higher colonoscopy resource availability is associated with higher colonoscopy utilization suggest that certain areas of the province may be under-resourced. These areas may be appropriate targets for efforts to improve colonoscopy capacity in Ontario.

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