Practice makes perfect: Quality assessment of colonoscopy procedures at The Ottawa Hospital

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Background

To deliver quality care in colonoscopy, it is important to examine key quality indicators. This allows us to determine if standards are being met by physicians and to identify areas in which improvements can be made. Canadian guidelines recommend screening average risk individuals aged 50-74 for colorectal cancer with FOBT (either by gFOBT or FIT) every two years or with flexible sigmoidoscopy every 10 years.[1] Key indicators used to evaluate the quality of colonoscopy are cecal intubation rate (CIR), adenoma detection rate (ADR) and quality of bowel preparation (QBP). The Canadian Association of Gastroenterology (CAG) recommends that CIR be superior to 85-90% for all indcations[2] and >95% for screening related cases. According to the recommendations made by Cancer Care Ontario (CCO), inadequate bowel preps should account for less than 4% of colonoscopies.[2] Furthermore, it has been shown providers with an ADR ≥20% have significantly lower rates of missed cancers than those with those with detection rates <20%[3]. Polyp detection rates (PDR) are more easily determined and correlate with ADR. Since not all polpys detected and removed are adenomas, CCO has set PDR between 30-60% as targets. The current study aims to describe the results of one cycle of our endoscopy quality and improvement program.

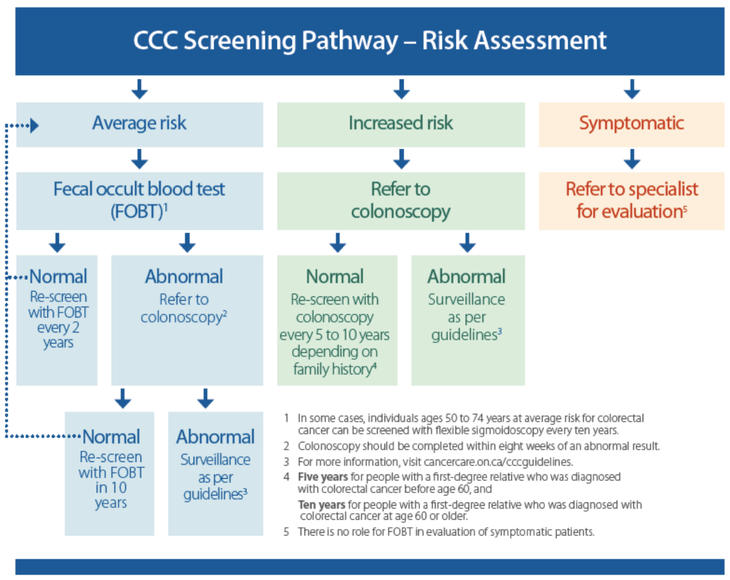

Figure 1 – Colon Cancer Check (CCC) Screening Pathway[4]

Objectives

To monitor the quality of colonoscopy procedures provided at TOH by evaluating cecal intubation rate (CIR), quality of bowel preparations (QBP), and polyp detection rate (PDR).

Methods

Colonoscopy interim reporting tool (CIRT) data was extracted for all colonoscopies completed at TOH from April 1st, 2015-January 31th, 2017. Providers and patient cases were de-indentified. Descriptive statistics were calculated for CIR, QBP, and PDR.

Results

11,453 colonoscopies were completed by 28 physicians. Age range of patients was 16-97 years old, with a mean age of 58.6 years old (C.I. 95% 58.3-58.8). The range for procedure volume per physician was 2-1,419 cases. Providers 4, 5, 9, 11, 14, 21, 22 and 28 had low procedure volumes (defined as <100 cases).

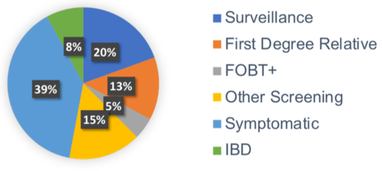

Figure 2 - Percentage of colonoscopies per indication for procedure

The overall CIR for all procedures completed at TOH was 96.99%. It ranged from 78%-100% between physicians; outliers had low procedure volumes. The overall rate of adequate bowel preparation (defined as either fair or good) was 95.92%. Both physicians with bowel prep adequacy rates <85% had low procedure volumes. Bowel prep quality was significantly worse with increased patient age. The overall PDR was 46%. Providers with a PDR <35% had low procedure volumes.

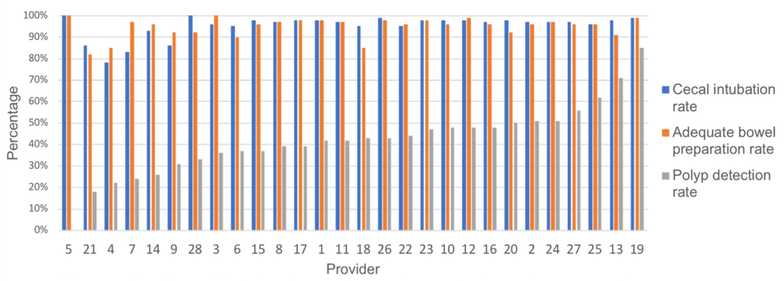

Figure 3 - Cecal intubation rate, adequate bowel preparation rate and polyp detection rate by provider

Most physicians had adequate cecal intubation rates regardless of their PDR. However, low volume physicians tended to have low PDR and CIRs.

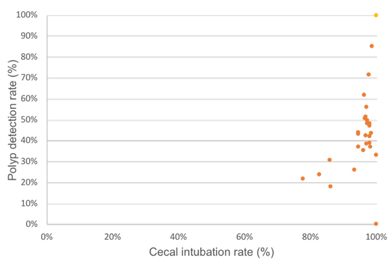

Figure 4 -Polyp detection rate versus cecal intubation rate

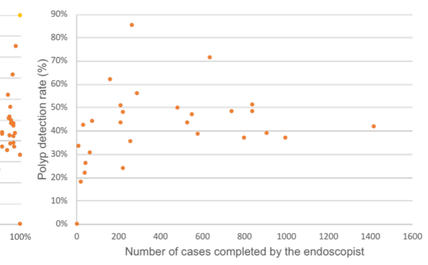

Figure 5 - Polyp Detection rate by Endoscopist and Volume

Results continued

In general screening related colonoscopies were associated with better bowel preparation quality than colonoscopies performed for evaluation of symptoms.

Table 1 – Quality of bowel preparation versus indication for procedure

Indication for procedure	Quality of bowel preparation		
	Poor	Fair	Good
Surveillance	4.26%	9.56%	86.2%
First degree relative	2.88%	7.78%	89.3%
IBD	5.06%	17.7%	77.2%
Other screening	4.13%	8.88%	87.5%
FOBT+	4.32%	9.19%	86.5%
Symptomatic/abn test	4.05%	9.06%	86.9%

Analysis of variance demonstrated worsening bowel preparation with increasing age ($p<0.05$).

Conclusions

- Overall, TOH is meeting the standards for CIR, QBP and PDR
- Colonoscopy providers who individually fell below the recommended benchmarks for PDR, CIR or QBP had low case volumes during the period studied. Further studies are needed to determine if these results are due to low sample size, skill of the individual endoscopist or patient type before recommendations can be made.
- There was an association between CIR and PDR
- Prep quality varied based on age and indication for the procedure. The later may be related to the detailed bowel prep explanations given by the screening clinic clerks.

References

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