



Use of Screening Versus All Exams to Calculate Mean Adenomas Per Colonoscopy: Data from the New Hampshire Colonoscopy Registry



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INTRODUCTION

Adenomas per colonoscopy (APC) may be a better quality measure than adenoma detection rate since it reflects the ability of an endoscopist to optimize colorectal cancer prevention by clearing the colon of all precursors. A major limitation of all detection rates is that some endoscopists have a lower volume of exams. A proposed solution is to use all exams as opposed to current calculation using only screening colonoscopies. We used data from the New Hampshire Colonoscopy Registry (NHCR) to compare APC calculated with data from screening versus all exams.

METHODS

Our sample consisted of patients enrolled in the NHCR with at least one follow up event, either a colonoscopy or CRC diagnosis in the New Hampshire State Cancer Registry which includes data from NH and other states (VT,MA, ME). The exposure variable was APC which was calculated as the total number of adenomas detected divided by the number of colonoscopies for each endoscopist. Screening APC (APC-S) used data from screening exams and APC-A used all exams, regardless of indication. APC was examined as continuous variables as well by categories, 0.2, 0.4, 0.6 and 0.8. We examined risk for post-colonoscopy CRC (PCCRC), defined as any CRC diagnosed at least 3 months after an index exam. Exclusion criteria were any CRC diagnosed at index or within 3 months, incomplete exams, IBD, and genetic syndromes. Cox regression was used to model the Hazard of PCCRC on APC controlling for age, sex, index exam year, index findings, bowel prep quality, having more than 1 surveillance exam and family history of CRC.

RESULTS

Our sample included 27,688 exams performed by 152 endoscopists with 153 CRCs diagnosed at least 3 months after the index exam. APC-A and APC-S had a high correlation (Spearman's rho=0.90; p< 0.001) but the mean APC-A was higher (0.69) than APC-S (0.43) Both APC rates were associated with a reduction of PCCRC as a continuous variable as well as stratified as above (Table 1). The median percentage of screening exams across endoscopists was 50% (IQR=16).

Table 1. Hazard Ratios of post colonoscopy CRC calculated for screening (APC-S) & all exams (APC-A)

	<0.2 (REF)	0.2-<0.4	0.4-<0.6	0.6-<0.8	0.8+	P value	
APC-S	HR	1.0	0.20	0.17	0.15	0.08	
	95 % CI	REF	0.12-0.34	0.10-0.29	0.07-0.32	0.03-0.25	0.0001
	Absolute Risk	2.6%	0.7%	0.5%	0.3%	0.2%	0.0001
	N	688	10175	10424	4042	2359	---
APC-A	HR	1.0	0.22	0.21	0.18	0.11	
	95% CI	REF	0.11-0.44	0.12-0.40	0.10-0.34	0.06-0.23	0.0001
	Absolute Risk	2.5%	0.7%	0.7%	0.5%	0.2%	0.0001
	N	522	3540	7889	7686	8051	---

HR= Hazard Ratio

DISCUSSION

Our novel data support the use of APC as calculated for all exams as a quality measure by demonstrating a reduction in PCCRC risk in exams performed by endoscopists with higher APC-As, similar to that for APC-S. In addition, the 2 rates correlated closely. However, varying proportions of screening exams among endoscopists may make it difficult to develop benchmarks without adjusting for endoscopist case mix.