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FURTHER REFINEMENT OF A PREDICTIVE CALCULATION FOR THE SESSILE SERRATED POLYP DETECTION RATE

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The potential inclusion of the Sessile Serrated Polyp (SSP) detection rate as a KPI for quality colonoscopy is complicated by determining an accurate definition of a SSP. Reporting of an SSP can be pathologist dependent & may require detailed review of the endoscopic appearance alongside the histology report. Given that SSPs may be implicated in up to 30% of colorectal cancers and the burden associated with routine collection of such KPIs, the development and validation of a predictive calculation associated with polyp detection rates is attractive, and may circumvent inconsistent pathology reporting. However, consideration must be given to the different definitions of what is a clinically significant SSP & if the predictive calculation holds for the multiple definitions of SSP. Method: Colonoscopy records from Jul 2014 to Sept 2017 were retrospectively examined at two outer urban hospital endoscopy units in Australia. Exams with IBD, polyposis syndromes, pre-operative indications, inadequate bowel prep, an anastomosis or obstructing mass, or failed intubation were excluded. The SSP detection rate was calculated as (A) all histologically sessile serrated polyps (cystic change at base and anchor/boot shaped crypts with or without cytological dysplasia) & resected proximal to the splenic flexure, (B) All serrated polyps (histologically SSP/A or hyperplastic polyps >5mm resected proximal to the sigmoid, & (C) Clinically significant serrated polyps (histologically SSP/A), or hyperplastic polyps >5mm resected proximal to the sigmoid, or hyperplastic polyps >10mm. SSP detection rate (SSPDR) was calculated from the proven histology for each of the three definitions & a calculated predicted rate was estimated using the calculation in image 1. Results: 10,751 colonoscopies were included. A subset of the data included information regarding polyps >10mm for Group C, which totalled 6,020 colonoscopies. The number of average colonoscopies per endoscopist was 352. The average age of patients was 58 years and 45% were male. Including all endoscopists, the average PDR for all indications was 60.6% (SD 14.1%) & the average ADR was 45.2% (SD 14.5%). Table 1 presents the respective rates for each definition of SSPDR. All definitions of actual SPPDR had strong positive & statistically significant associations with the calculations of SSPDR. Conclusion: For estimation of SSPDR, using a proxy calculation is feasible and reasonably accurate while also reducing the overall burden for data collection and analysis. Definition C's relative burden of collection restricts its utility. If endoscopy units are comfortable with the quality/consistency of histology reporting, definition A would be sufficient but definition B would provide a safety net for low confidence in pathology reporting. This has specific utility for determining when a detailed review of the KPI is warranted.

$$Calculated\ SSADR = \frac{Proximal\ PDR}{\left(\frac{PDR}{Proximal\ PDR}\right) + \left(\frac{Weighted\ PDR}{Weighted\ Proximal\ PDR}\right)}$$

Image 1

			Definition A				Definition B				Definition C			
		n endoscopists	n exams	Histopath Mean SSPDR	Calculated Mean SSPDR	Pearson Correlation*	n	Histopath Mean SSPDR	Calculated Mean SSPDR	Pearson Correlation*	n	Histopath Mean SSPDR	Calculated Mean SSPDR	Pearson Correlation*
Any number of colonoscopies		30	10571	12.6%	10.3%	0.8777	10571	18.8%	15.2%	0.9499	6020	20.3%	21.9%	0.8965
>50 colonoscopies		25	10414	13.5%	13.4%	0.9065	10414	19.7%	16.9%	0.9495	5952	20.3%	22.2%	0.8987
>100 colonoscopies		21	10092	13.1%	10.6%	0.8994	10092	19.3%	16.1%	0.9387	5736	19.5%	21.4%	0.8991
Analysis of Sub-categories in endoscopists with >50 colonoscopies														
Hospital	1	9	3499	15.9%	16.1%	0.9285	3499	23.7%	19.9%	0.9758	1823	25.5%	26.4%	0.901
	2	17	6915	13.1%	12.8%	0.8997	6915	18.9%	16.3%	0.9322	4288	18.6%	20.9%	0.913
Professional Group	Surgeon	8	3787	9.8%	10.0%	0.8848	3787	15.1%	13.2%	0.9261	1685	13.9%	14.5%	0.8263
	Physician	15	4580	14.7%	14.4%	0.8903	4580	21.0%	17.9%	0.9588	2837	22.5%	26.2%	0.8922
	Nurse Endoscopist	2	2047	18.9%	19.3%	-	2047	20.9%	18.3%	-	1408	21.6%	28.9%	-
ADR >50y (mean 49.0%)	Higher than mean	11	3981	19.0%	20.1%	0.7673	3981	27.9%	23.7%	0.8898	2611	30.0%	32.1%	0.6776
	Lower than mean	14	6433	9.1%	8.9%	0.821	6433	13.4%	12.1%	0.901	2936	16.0%	14.1%	0.7856
PDR (mean 62.7%)	Higher than mean	12	4251	17.7%	18.5%	0.8378	4251	26.5%	22.2%	0.9177	2825	27.4%	29.0%	0.8332
	Lower than mean	13	6163	9.6%	9.1%	0.8329	6163	14.0%	12.3%	0.8999	3127	13.8%	16.4%	0.7454
* all correlations were found to be statistically significant with p<=0.00001														

Table 1.

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PREDICTORS OF ERCP-ASSOCIATED INFECTIONS IN OUTPATIENT HOSPITALS

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Background: Duodenoscope design and reprocessing remains an active area for innovation and investigation. Structural and human factors are likely to play a role in infection transmission within the endoscopy unit. We aimed to identify factors associated with higher rates of hospitalization for infection after ERCP performed in an outpatient hospital setting. Methods: We mailed all 4,473 United States outpatient hospitals that performed at least 10 gastrointestinal endoscopic procedures in Medicare beneficiaries between January 2015 and December 2018. We asked participants to answer questions about their practice (% Medicare, procedures performed), endoscope reprocessing steps (brands of endoscopes and reprocessors, manual versus automated steps taken) and infection prevention involvement (name of infection prevention specialist, how often they visit endoscopy). We limited our analyses to the 1,562 hospitals with at least 10 ERCP procedures. Infections were identified by hospitalization for infection within 7 days of the outpatient ERCP procedure in Medicare fee-for-service claims using ICD-9 and ICD-10 codes; infections recorded on the day of the procedure were excluded from the analysis. Procedure volume and mean chronic conditions were obtained from the claims. If the observed/expected for infections was 2 or greater, the hospital was considered an outlier. High-volume centers were those with at least 20 ERCP procedures. Logistic regression was used to identify predictors of infection. Results: In our analysis of 1,562 hospitals, 18% had an observed/expected infection rate of 2 or greater and were considered outliers. The mean observed infection rate in the outliers was 3.3% with a maximum of 18%. The only predictor of outliers was volume (Odds Ratio [OR] 2.2; 95% CI 1.5-3.3), even after accounting for patient comorbidities. In the analysis of the 40 hospitals that responded to the survey so far, surprisingly, 18% of respondents reported that their facility did not perform ERCP; 6/7 respondents identified themselves as infection preventionists. 72% of hospital endoscopy units are visited by an infection preventionist at least one per month. Endoscope and reprocessor brands followed market share. Only 8% of hospitals reported spending at least 90 minutes reprocessing the duodenoscope; 73% reported spending less than 60 minutes on reprocessing. The only predictor of outliers remained volume. Conclusion: The primary predictor of infections was greater ERCP volume even after accounting for patient comorbidities, reprocessing steps and the role of the infection preventionist. Facilitating better communication between the endoscopy unit and infection prevention appears to be an area that could be improved to increase adherence with duodenoscope reprocessing guidelines.

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EFFICIENCY IN THE ENDOSCOPY UNIT: CAN WE 'TURN AROUND' ROOM TURNOVER?

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Background: Endoscopy units around the world are being challenged to meet the growing demand for procedures despite limited resources, highlighting the need to optimize endoscopy unit efficiency. Earlier studies have found that non-procedural factors, such as room turnover, represent an ideal target to improve efficiency. Aims: The objective of this research project was to identify practices that will improve efficiency for routine outpatient gastrointestinal (GI) procedures at a single hospital in Toronto, Canada. There were 2 sub-aims: 1) to understand practices at other Toronto hospitals that shorten non-procedure time, defined as 'scope out' to 'scope in', and 2) to describe the variation in non-procedure time at SHSC. Methods: Sub-aim #1: A survey of endoscopy units at five other Toronto hospitals was completed. Questions were designed to gain a better understanding of routine practices and initiatives undertaken to improve room turnover efficiency. Sub-aim #2: Median non-procedure time from April 2018 to March 2019 was reported in an anonymized fashion for the following categories: 1) by endoscopist, 2) by nurse, and 3) by unique endoscopist-nurse pair. Only data from routine outpatient endoscopic procedures (e.g. colonoscopy, gastroscopy, flexible sigmoidoscopy) were included. In order to evaluate median non-procedure time by endoscopist-nurse pair, consecutive cases not performed by the same pair were excluded. Procedures affected by patient-related delays were also excluded. Results: Of the five centers surveyed, all centers reported having support staff to help nurses with room turnover. Four centers reported undertaking initiatives to improve efficiency such as involving a flow team, hiring additional team attendants, and sharing performance data. Over the 12-month period, 2495 routine outpatient GI endoscopic procedures were performed, with 794 cases meeting inclusion criteria. Median non-procedure time for the unit was 19 minutes, ranging from 13.5 to 22.5 minutes across endoscopists, 17 to 19 minutes across nurses, and 12 to 27 minutes across unique endoscopist-nurse pairs (Figure 1). Efficiency of endoscopist-nurse pairs did not correlate with the number of cases performed as a pair over the 12-month period. Conclusions: We found important variation in non-procedure time across endoscopists and nurses, with the most efficient pair having a non-procedure time more than two times shorter than the least efficient pair. The next phase of this study, which is currently underway, involves directly observing each of the most and