



# Polyp Excision Rates Post-COVID-19: Personal Protective Equipment Does Not Impair Performance

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## Introduction

The United Kingdom's Joint Advisory Group on Gastrointestinal Endoscopy's minimum accreditation standard and aspirational standard for polyp detection rates in colonoscopy are 15% and 20% respectively.<sup>1</sup>

The COVID-19 pandemic precipitated the mandatory use of restrictive personal protective equipment (PPE) during endoscopy. This PPE can be cumbersome, hot and uncomfortable. Accordingly, it might serve to hinder dexterity, shorten endoscopy time and accordingly decrease polyp detection and excision rates.

## Aims

We audited our polyp excision rates both prior to and post the onset of the COVID-19 pandemic in order to assess whether restrictive PPE led to a diminution therein.

## Methods

We queried our endoscopy database for all colonoscopies performed between 01 January 2014 and 29 February 2020 (Pre-COVID-19, n=18,231) and for those performed between 01 March 2020 and 02 September 2020 (Post-COVID-19, n=825). This dataset was subsequently irrevocably anonymised.

A polyp excision rate was calculated for each period as a proxy for polyp detection rates as per Joint Advisory Group guidelines.<sup>2</sup>

An odds ratio comparing excision rates in the post-COVID-19 period with those in the pre-COVID-19 period was calculated.

The relationship between polyp excision and time period was explored through ordinary least squares regression.

Hypothesis statement construction was as follows:

$H_0$ : The number of polyps excised per procedure is not correlated with that procedure having been performed in the post COVID-19 period.

$H_A$ : The number of polyps excised per procedure is correlated with that procedure having been performed in the post COVID-19 period.

Equation 1, below, was specified for estimation via ordinary least squares regression methodology. The regression was controlled for age, male gender and procedure having been coded as therapeutic (as opposed to diagnostic).

$$NPE_i = \alpha_0 + \alpha_1 POSTCOV_i + \alpha_2 AGE_i + \alpha_3 MALE_i + \alpha_4 THER_i + \varepsilon_i$$

Where  $NPE_i$  denotes the number of polyps excised during procedure  $i$ ,  $POSTCOV_i$  is a dummy variable which takes the value of 1 where procedure  $i$  took place in the post-COVID-19 period,  $AGE_i$  denotes the patient's age at the time of procedure  $i$ ,  $MALE_i$  is a dummy variable which takes the value of 1 where the patient undergoing procedure  $i$  was of male gender and  $THER_i$  is a dummy variable which takes the value of 1 for procedure  $i$  where said procedure has been coded as therapeutic as opposed to diagnostic,  $\varepsilon$  is a random disturbance term that is independently and identically distributed and the alpha coefficients are scalars.

## Results

4,346 and 209 patients had at least one polyp excised in the pre-COVID-19 (PER 23.8%) and post-COVID-19 (PER 25.3%) periods respectively. Odds ratio 1.08 (95% Confidence Intervals: 0.92, 1.27).

**23.8%**

Polyp Excision Rate Pre-COVID-19

**25.3%**

Polyp Excision Rate Post-COVID-19

	Pre-COVID-19 Period	Post-COVID-19 Period
Number	18,231	825
Polyp Excision Rate	23.8%	25.3%
Age: Mean / Std Dev.	56.05 / 16.08	57.24 / 16.36
Male: No. / %	8645 / 47.4%	397 / 48.12%
Therapeutic: No. / %	5244 / 28.8%	

Table 1: Descriptive Statistics

Variable	Coeff	Std Error	Prob	95% Cis
$\alpha_0$	-0.259	0.027	0.000	
POSTCOV	-0.003	0.036	0.933	-0.07, 0.07
AGE	0.004	0.000	0.000	0.003, 0.005
MALE	0.099	0.015	0.000	0.07, 0.13
THER	1.746	0.017	0.000	1.71, 1.78
Observations	19,056			
Adjusted R2	0.394		Prob (F-Stat)	0.000

Table 2: Estimation output pertaining to equation 1

Equation estimation using the ordinary least squares method did not permit rejection of the null hypothesis. The regression demonstrated positive relationships between number of polyps excised and age, male gender and procedure coded as therapeutic. It demonstrated no significant relationship between procedure in the post-COVID-19 period and number of polyps excised.

## Conclusion

Odds ratios comparing PERs and an OLS regression analysing number of polyps excised failed to demonstrate any significant difference between the pre-COVID-19 and post-COVID-19 periods.

## References

<sup>1</sup> Joint Advisory Group on GI Endoscopy, 2019. *JAG Accreditation Programme: Guide To Meeting The Quality And Safety Standards*. London: Royal College of Physicians UK, p.7.

<sup>2</sup> *Ibid*, p.8.