POLYP DETECTION RATE CHANGED BETWEEN SHIFTS

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TO THE EDITOR:

I read with great interest the comprehensive and interesting paper by Hazzan and colleagues in the *Israel Medical Association Journal* (*IMAJ*) [1]. The authors examined the difference in the results between morning and afternoon shifts of colonoscopy procedures. Not to my surprise, they found that more polyps were found in the morning shifts than in those in the afternoon. I believe, as do the authors, that the higher quality of the colonoscopy, the better its efficacy in detecting polyps and preventing colorectal cancer (CRC).

In 2022, we added the polyp detection rate (PDR) quality indicator to the Israeli National Quality Indicators Program (INQIP). In this program, the Israel Ministry of Health measures the capability of the hospitals to achieve the goal of the quality indicator as accepted benchmarking in the advanced health systems in the world [2]. The primary endpoints of Hazzan and co-investigators were only the total number of polyps found and the percentage of complete examination. I want to expand the spectrum and address some more factors important for the quality of a colonoscopy.

The PDR definition is all colonoscopies with at least one polyp. In the article, the authors measured the rate of colon polyps, which is the total number of polyps and not the PDR. This factor might be a surrogate indicator but cannot be used for comparison between groups in a study setting.

The PDR is dependent on several factors that should be addressed when the quality of colonoscopy is discussed. These factors include cecal or terminal ileum intubation (complete examination), preparation measured with Boston scale, withdrawal time from cecum to anus (should be more than 6 minutes), co-operation of the patient during the examination (dependent on good sedation), improved technical facilities such as specific staining and artificial intelligence, and a properly performed polypectomy.

With an excellent colonoscopy, the PDR will be at least 40%, which correlated with a 25% adenoma detection rate found by the authors and indicates a decrease in post-colonoscopy CRC or intermediate CRC [3]. [Figure 1].

Figure 1. Quality factors in colonoscopy
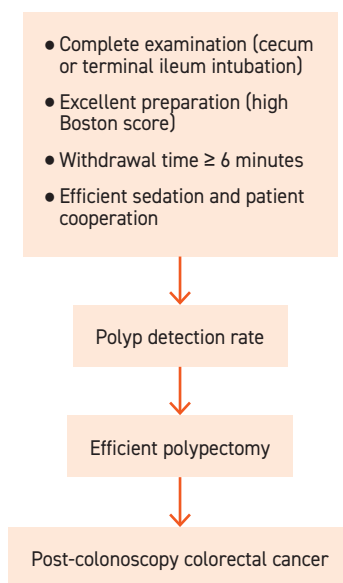
After 2 years of INQIP measuring, a similar finding was demonstrated. A lower PDR was noted in afternoon shifts than in morning shifts, with a positive correlation between the withdrawal time and PDR. Hopefully after 3 years of measurement, the correlation between PDR and decreased number of post-colonoscopy CRCs will be significant.

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2. Niv Y. Polyp detection rate may predict adenoma detection rate: a meta-analysis. *Eur J Gastroenterol Hepatol* 2018; 30 (3): 247-51.
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Response to Prof. Yaron Niv

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TO THE EDITOR:

We thank Prof. Yaron Niv for his thorough review and thoughtful letter regarding our article, *Higher Polyp Detection Rate and Cecum Intubation Rate in Morning Shift Compared to Afternoon Shift: A Multicenter Large Cohort Retrospective Study* [1]. We welcome the opportunity to respond to the important points raised in his letter.

DEFINITION AND USE OF PDR IN OUR STUDY

In our study, we used the standard definition of polyp detection rate (PDR), which is the proportion of colonoscopies with at least one polyp detected per procedure, rather than the total number of polyps

found. While Prof. Niv noted concern about our use of rates of colon polyps, the dataset and analysis were based on binary PDR (i.e., ≥ 1 polyp per colonoscopy), in accordance with established quality metrics [2,3]. This result is reflected in our methods and tables, particularly Table 4 [1].

While adenoma detection rate (ADR) is often considered the gold standard, it is logistically challenging to determine in large retrospective databases as it requires histological confirmation of the presence of adenomas. PDR, which correlates closely with ADR, has been widely accepted as a valid and practical surrogate quality indicator [4,5], particularly in large-scale, real-world studies such as ours.

ACKNOWLEDGING ADDITIONAL QUALITY FACTORS

We concur with Prof. Niv that other procedural factors, such as withdrawal time, sedation quality, advanced imaging techniques, and artificial intelligence (AI)-assisted polyp detection, are relevant to colonoscopy quality [6-8]. Unfortunately, our retrospective design and the heterogeneity across multiple centers limited our ability to collect uniform data on these metrics.

Withdrawal time, a recognized determinant of ADR, was not consistently documented across the seven Assuta centers. This factor was noted as a limitation in our manuscript.

Sedation protocols are standardized at Assuta Medical Centers and are unlikely to differ systematically among shifts. Thus, while important, they were not expected to bias the results in either direction.

STUDY STRENGTHS: REAL WORLD, MULTICENTER DESIGN

We respectfully emphasize the unique strengths of our study. Nearly 370,000 colonoscopies were analyzed, providing the largest Israeli cohort on this topic to date. Seven high-volume endoscopy centers contributed to a robust, real-world dataset. Standardized reporting and data extraction from the MDClone platform ensured data consistency across centers. Multivariable analyses were adjusted for known confounders including age, sex, indication, and bowel preparation quality.

This large-scale, multicenter analysis offers high external validity and real-world relevance. It confirms prior reports of lower PDR and cecum intubation rate (CIR) in afternoon shifts and supports future strategies to mitigate this variation.

ALIGNMENT WITH INQIP AND NATIONAL QUALITY PRIORITIES

We commend the work of Prof. Niv and the Israel Ministry of Health in incorporating PDR into the Israeli National Quality Indicators Program (INQIP). Our findings strongly support INQIP's efforts to improve colonoscopy quality by identifying operational factors, such as endoscopist fatigue or shift timing, that may affect performance. We think our data can support actionable changes such as optimizing shift length or assist endoscopists during afternoon hours.

CONCLUSIONS AND APPRECIATIONS

We appreciate Prof. Niv's engagement with our work. His feedback has enabled us to clarify our definitions and reflect on broader quality measures for colonoscopies. We stand by our findings, which demonstrate a statistically significant, clinically relevant difference in PDR and CIR between morning and afternoon shifts. We hope that our study will contribute to ongoing efforts to enhance colonoscopy quality in Israel and internationally.

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The past is a foreign country; they do things differently there.
L.P. Hartley (1895–1972), English novelist and short story writer