



(RESEARCH ARTICLE)



## A study to assess the Nurses knowledge & compliance to the protocol of adequate bowel preparation for colonoscopy

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### Abstract

**Introduction:** Cleansing the colon before a colonoscopy is called bowel preparation, or “prep.” It involves taking medication that causes frequent, loose bowel movements to empty the colon. The medication is taken by mouth and typically comes in liquid form. Bowel cleansing is one of the most important parameters included in the evaluation of colonoscopy quality. The available evidence suggests that inadequate bowel preparation reduces the diagnostic yield of colorectal neoplasia and increases post-colonoscopy colorectal cancer risk. Nowadays, up to 30% of patients referred for colonoscopy have poor bowel cleansing. Recently, several studies have analyzed the risk factors for inadequate bowel cleansing as well as the strategies to optimize bowel preparation. Poor bowel preparation has been shown to be associated with low lower-quality dilators of colonoscopy performance. Patients with Personal History of Inadequate Bowel Preparation, Diabetes Mellitus, Chronic Constipation, and a History of Colorectal Resection are at risk of inadequate bowel preparation for colonoscopy.

**Methodology:** In November 2022, there was an increase in consultant complaints about inadequate Bowel preparation for the patient in the ward & ICU which impacted on proper diagnosis of the actual reason the patient took admitted at Apollo Hospitals, Bhubaneswar. So on basis of the complaints, a quasi-experimental group pre-test was conducted & found the less compliance. To look forward to checking the compliances, training & educational materials were prepared on basis of protocol of adequate bowel preparation for colonoscopy (education materials contained agents, methods (single/split) of preparation, dietary patterns, stool consistency assessment) & started implement from December 2022 onwards in both one to one & group teaching. And by end of February 2023, a post-test was conducted to assess the improvement of knowledge of Nurses. To collect the data of their practices on adequate bowel preparation a structured PIP (performance Improvement Project) tool was used & total sample took 100 assigned Register Nurses who all were assigned the In-patients for Colonoscopy.

**Results:** With constant reinforcement, educational materials on adequate Bowel preparation of Colonoscopy & knowledge assessment of assigned nurses made an impact on the effective intervention in adequate Bowel preparation. The impact of compliance to assess the knowledge & interventions of nurses in adherence to the protocol of Adequate Bowel preparation for colonoscopy. The knowledge of Nurses found less compliance in the Pre-Test which was conducted after consultant’s complaints

in the month of November 2022 with 55.83% & then after training & educational materials were prepared on basis of protocol of adequate bowel preparation for colonoscopy {education materials contained agents, methods (single/split) of preparation, dietary patterns, stool consistency assessment} & started implement from December 2022 onwards in both one to one & group teaching. And by end of February 2023, a post-test was conducted to assess the improvement of knowledge of Nurses & found compliance percentage of 78.33%. And Compliance with adherence

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to the proper method of Bowel Preparation Protocol found compliances month on month, in December 2022 it was 30.29%, in January 2023 it improves to 55.26% & reaches with compliances of 78.94% by the end of February 2023.

**Conclusion:** In patients under the care of nurses who underwent enhanced education on bowel preparation had significantly better bowel preparation quality and higher compliance rates than those in inpatients of the control group. Nurses' education was identified as an independent risk factor for bowel preparation quality. To make bowel preparation adequate & sufficient frequent updating on knowledge of the recruited nurses need to be done on regular basis.

**Keywords:** Colonoscopy; Compliances; IP(In-patient); PIP (Performance Improvement Project) tool; Bowel preparation; Adequate; Knowledge; Intervention

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## 1. Introduction

Hospitalization compared to the ambulatory setting is associated with an almost twofold higher risk of failed bowel preparation before colonoscopy, while the rate of inpatients with adequately prepared colon does not exceed 50%, as they are usually of advanced age, debilitated, and suffering from comorbidities that either prevent successful ingestion of bowel prep or affect patients' comprehension and compliance with the regimen's instructions [1]. Suboptimal bowel preparation contributes not only to increased risk of missed pathology and patient inconvenience but also to a detrimental burden for healthcare systems, due to delayed or repeated procedures and prolonged hospital stay [2, 3]. In order to overcome these hardships, several studies have evaluated the efficacy of various interventions, i.e., different purgatives, alterations in the timing of preparation administration, and the introduction of educational programs for physicians, nurses, and patients. In this context, we conducted a systematic review of the current literature, to provide insights into the types of interventions used to substantially imprint's bowel preparation. Bowel preparation (or bowel prep) empties and cleans out your large intestine (colon). Bowel prep is done before tests that look inside your colon, such as a colonoscopy. These tests look for small growths (called polyps), cancer, or other problems like bleeding. It is extremely important that the colon be thoroughly cleaned before a colonoscopy. This will let the doctor see any abnormalities, such as colon polyps, during the procedure. Polyps are small growths in the colon that could later turn into cancer.

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## 2. Methodology

- **Research approach:** Quantitative research approach.
- **Research design:** Quasi-experimental one-group pre & post-test research design
- **The variables used:** The research variable were knowledge of the nurses & compliance of the nurses to the adequate bowel preparation for colonoscopy.
- **Settings of the study:** Apollo Hospitals, Bhubaneswar
- **Duration of the study:** November 2022 to February 2023
- **Data collection method:** Pre-test was done regarding knowledge of the nurses regarding bowel preparation protocol in the month of November. On job education was given to each nurses individually and Post test was conducted after 2 days. The compliance to bowel preparation protocol was assessed by observing the practices, individual interview with nurses and checking documentation in Nurses notes and progress sheet.
- **Target population:** In-patients with Colonoscopy & register nurses at Apollo Hospitals, Bhubaneswar
- **Sample:** Patients advised for colonoscopy and register nurses at Apollo Hospitals, Bhubaneswar
- **Sample Size:** 100 Registered Nurses working in ward & ICUs.
- **Sampling Method:** Purposive sampling
- **Inclusion criteria:** Register Nurses who are all assigned to In-Patient posted for Colonoscopy at Apollo Hospitals, Bhubaneswar
- **Exclusion criteria:** Register Nurses who all are assigned to Out-patients came for colonoscopy.

### 2.1. Tool used for data collection

A structured format of the PIP (Performance Improvement Project) tool & it contains three main sections

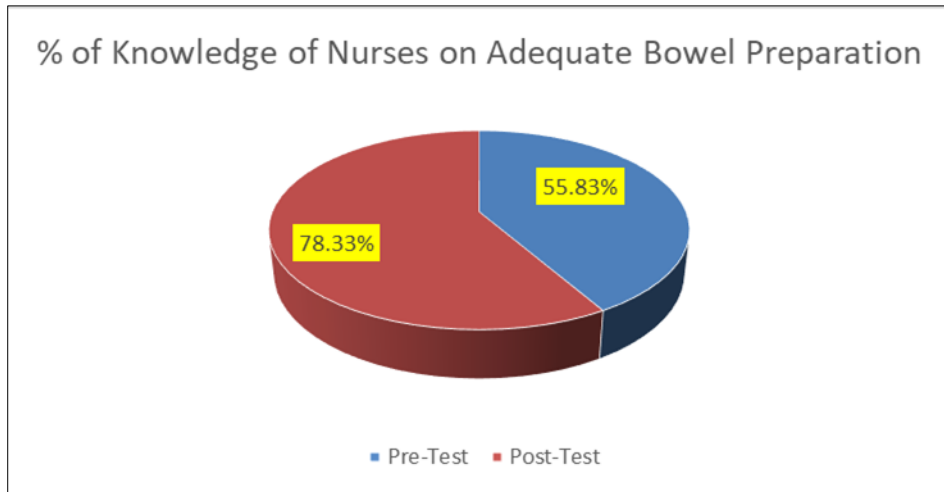
- Section-A (Patient details)
- Section-B (Compliance to adequate bowel preparation)



b. 5yrs-7yrs	9	16.34%
c. 8yrs-10yrs	2	16.34%

**Table 2** Quantitative assessment of Knowledge of Nurses on adequate bowel preparation for colonoscopy n=100

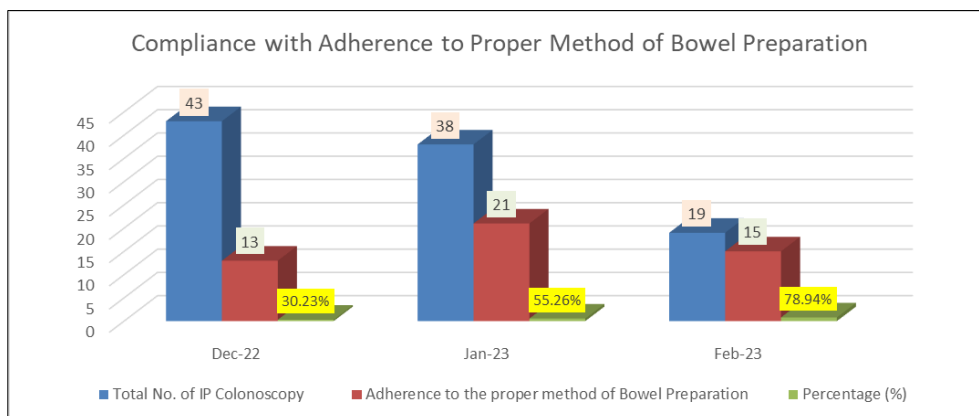
<b>Knowledge of Nurses on adequate bowel preparation for colonoscopy</b>	<b>Pre-Test</b>	<b>Post-Test</b>
<b>Are you aware of the agents used for a colonoscopy? If yes mention the agents.</b>		
Yes & explained	39	63
No	61	37
% of compliances	39%	63%
<b>Do you know the methods of Bowel preparation for a colonoscopy? If yes mention the methods.</b>		
Yes & explained	53	72
No	47	28
% of compliances	53%	72%
<b>Do you know which pattern of diet will you provide for adequate Bowel preparation? If yes, mention the pattern of diet</b>		
Yes & explained	67	83
No	33	17
% of compliances	67%	83%
<b>Do you know to assess the consistency of stool for adequate Bowel preparation? If yes, mention the consistency should be.</b>		
Yes & explained	45	76
No	55	24
% of compliances	45%	76%
<b>Will you check the frequency of stool for adequate Bowel Preparation for colonoscopy?</b>		
Yes	69	89
No	31	11
% of compliances	69%	89%
<b>Is effective Patient &amp; Family Education done on adequate Bowel Preparation for a colonoscopy?</b>		
a. Yes	62	87
b. No	38	13
% of compliances	62%	87%
% of nurses have Knowledge of Nurses on adequate bowel preparation for colonoscopy	55.83%	78.33%



**Figure 2** The compliance rate of knowledge of nurses on adequate bowel preparation was 55.83% (November 2022) & there were improvement of knowledge in Post-test reaches 78.33% with adherence to the protocol of Adequate Bowel preparation for Colonoscopy through implementation of structured training & teaching materials & reinforcement sessions by the end of February 2023.

**Table 3** Frequency and percentage of compliance with adherence to the proper method of Bowel preparation protocol for Colonoscopy from December 2022 to February 2023. n=100

Compliance with adherence to the proper method of Bowel Preparation Protocol (From December 2022 to February 2023).			
Month	Total No. of IP Colonoscopy	Adherence to the proper method of Bowel Preparation	Percentage (%)
Dec-22	43	13	30.23%
Jan-23	38	21	55.26%
Feb-23	19	15	78.94%



**Figure 2** Frequency and percentage of compliance with adherence to the proper method of Bowel preparation protocol for Colonoscopy from December 2022 to February 2023

The data presented in Tables 3 & figure-2 describe the total number of colonoscopies done 100, out of which 78.94% compliance with adherence to the proper method of bowel preparation was studied from December 2022 to February 2023.

#### 4. Discussion

Bowel preparation leads to the highest compliance on adequate bowel preparations in Colonoscopy in a hospital. Bowel preparation is a complex procedure that requires active patient cooperation and a good understanding of the diet and purgative instructions. [4] In November 2022, there was an increase in consultant complaints about inadequate Bowel preparation for the patient in the ward & ICU which impacted on proper diagnosis of the actual reason the patient took admitted at Apollo Hospitals, Bhubaneswar. So on basis of the complaints, a quasi-experimental group pre-test was conducted & found the less compliance with 55.83% & then after training & educational materials were prepared on basis of protocol of adequate bowel preparation for colonoscopy {education materials contained agents, methods (single/split) of preparation, dietary patterns, stool consistency assessment}} & started implement from December 2022 onwards in both one to one & group teaching. And by end of February 2023, a post-test was conducted to assess the improvement of knowledge of Nurses & found compliance percentage of 78.33%. To collect the data of their practices on adequate bowel preparation a structured PIP (performance Improvement Project) tool was used & total sample took 100 assigned Register Nurses who all were assigned the In-patients for Colonoscopy & the Compliance with adherence to the proper method of Bowel Preparation Protocol found month on month, in December 2022 it was 30.29%, in January 2023 it improves to 55.26% & reaches with compliances of 78.94% by the end of February 2023. Hence, continuous training, assessment of knowledge & reinforcement sessions would improve the adequate bowel preparation & would improve the patient outcome.

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#### 5. Conclusion

In patients under the care of nurses who underwent enhanced education on bowel preparation had significantly better bowel preparation quality and higher compliance rates than those in inpatients of the control group. Nurses' education was identified as an independent risk factor for bowel preparation quality. To make bowel preparation adequate & sufficient frequent updation on knowledge of the recruited nurses need to be done on regular basis.

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#### Compliance with ethical standards

##### *Acknowledgments*

The authors would like to thank all the Nurses participated in this study.

##### *Disclosure of conflict of interest*

The authors declare that there is no conflict of interest in publishing this paper.

##### *Statement of Ethical Approval*

Permission from the unit head & Nursing head and ethical committee (Ethical Review No.- AHB-C-S-014/10-22) was obtained before collecting the data. Ethical review done in detail & approved for the study.

##### *Statement of informed consent*

Informed consent was obtained from all the Nurses included in the study.

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