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# Stoma creation: does onset of ostomy care education delay hospital length of stay?

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**Abstract**

**BACKGROUND:** Balancing patient safety with hospital length of stay (LOS) and associated cost is critically important. Subjectively, we have observed that patients undergoing ostomy creation early in the week have a shorter LOS.

**METHODS:** We retrospectively reviewed LOS based on day of the week the operation was performed.

**RESULTS:** We reviewed 180 patients undergoing minimally invasive surgery with planned ostomy. Group 1 underwent surgery on Monday to Wednesday (n = 77), Group 2 on Thursday (n = 49), and Group 3 on Friday (n = 54). The average LOS for Group 1, 2, and 3 was 6.2, 4.9, and 7.2 days, respectively. The average number of visits with ostomy nursing for Group 1, 2, and 3 was 2.7, 1.8, and 2.3, respectively. Day of initial ostomy nursing visit was significantly correlated between the delay to initial visit and LOS with Group 3 delayed most.

**CONCLUSIONS:** Patients with the longest delay to initial nurse visit had the longest LOS, with Friday operations being most delayed. A contributing factor may be absence of ostomy teaching over the weekend.



## Introduction

Studies regarding ostomy teaching predominantly focus on methods of teaching. A study from Beth Israel Deaconess Medical Center identified a decrease in postoperative stay (from 7.5 to 6.6 days) for new ileostomates after instituting an ostomy teaching pathway that involved both preoperative and postoperative ostomy teaching.[1] Additionally, the American Society of Colon and Rectal Surgeons advocates for preoperative, perioperative, and postoperative care by WOCN-certified ostomy nurse specialist.[2] Multiple observational and cross-sectional studies, along with a single randomized controlled trial, support the benefit of perioperative ostomy teaching.[3–7] Chaudhri et al performed a randomized controlled trial wherein 42 patients were assigned to an intensive preoperative educational program before their operation. These patients had an average decrease of 2 days in the hospital (10 vs 8 days) as well as fewer unplanned healthcare interventions postdischarge.[8] There are no published data to suggest an effect on hospital stay secondary to postoperative in-hospital ostomy teaching.

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However, we have clinically observed the benefits of such teaching and sought to investigate it.

Ostomies, whether temporary or permanent, present significant physical and psychological change for patients. Even those patients who receive a planned ostomy may not be prepared to experience those changes until the ostomy is in fact present. Additionally, preoperative teaching may not be possible due to resource or geographic factors. We believe postoperative teaching is critical for appropriate patient education to allow hospital discharge when other clinical indications are met.

At our institution, ostomy nurses are only available on Monday through Friday. Anecdotally, our practitioners noticed a delay in our patients' postoperative discharge in part due to undergoing their operation later in the week and staying over the weekend to have further teaching the following week. The objective of this study was to evaluate the validity of this concern.

## Materials and Methods

After Institutional Review Board approval at the Swedish Hospital Medical Center in Seattle, Washington, all patient charts of individuals over 18 years of age who had undergone minimally invasive surgery with a planned ostomy between January 2011 and 2015 were retrospectively evaluated. Parameters examined included patient demographics, American Society of Anesthesiologists (ASA) score, weekday of operation, initial visit with ostomy nursing, number of visits with ostomy nursing during their hospital stay, and length of stay (LOS). The day of operation was divided into 3 groups: Group 1 (Monday, Tuesday, Wednesday), Group 2 (Thursday), and Group 3 (Friday). We then evaluated the data specifically to focus on the day of the initial ostomy visit. Statistical analyses were performed using IBM SPSS 18. Two-tailed Student *t* tests for heterogeneous degrees of variation were used for group difference comparisons. Correlations were used to assess associations between variables. Multiple regression was used to determine the most powerful predictors of patient LOS, with day of the week group, day of first nursing visit, surgical technique, age, and sex as potential predictors. Stepwise variable entry was used in this exploratory project. Exclusion criteria included open surgery and urgent/emergent operations.

## Results

A total of 180 patients from our institution undergoing minimal invasive surgery with ostomy creation between 2011 and 2015 was evaluated. The average age of the patients was 57.3 ± 15 years. There were 93 (51%) female and 87 (49%) male participants. Median American Society of Anesthesiologists score was 2 (Table 1). The LOS was initially analyzed based on timing of the operation by day of the week performed. We then evaluated LOS based on timing of initial ostomy visit.

**Table 1** Patient demographics

| Demographic | Group 1 | Group 2 | Group 3 |
|---|---|---|---|
| No. of patients | 77 | 49 | 54 |
| Age | 53.3 (20 to 89) | 52.6 (18 to 85) | 56 (31 to 90) |
| Sex | Male 40%<br>Female 60% | Male 52%<br>Female 48% | Male 58%<br>Female 42% |
| Median ASA score | 2.42 | 2.2 | 2.3 |

ASA = American Society of Anesthesiologists; Group 1 = Monday, Tuesday, and Wednesday operations; Group 2 = Thursday operations; Group 3 = Friday operations.

### Group 1

There were 77 patients included. From those, 46 (60%) patients were female and 31 (40%) male. The average number of ostomy nurse visits was 2.7. Average LOS was 6.22 days.

### Group 2

Forty-nine patients were included, of those 24 (52%) patients were female and 25 (48%) male. The average number of ostomy nurse visits was 1.8. Average LOS for this group was 4.9 days. The number of visits was statistically significant compared with Group 1 (1.8 vs 2.7 visits; $P < .05$).

### Group 3

There were 54 patients included, of those 23 (42%) patients were female and 31 (58%) male. Ostomy nurse visits averaged 2.3 visits. Average LOS was 7.2 days. When comparing Group 1 with Group 3, there was no statistically significant difference in LOS (6.22 vs 7.2 days) and number of ostomy nurse visits (2.7 vs 2.3).

When comparing Group 2 with Group 3, there was a statistical difference in LOS (4.9 vs 7.2 days, $P < .05$) but no difference in the number of ostomy nurse visits (1.8 vs 2.3, $P < .07$; Fig. 1).

### Day of initial nursing visit

The day of initial ostomy nursing visit was assessed and a positive correlation found across all patients between the days before the initial nursing visit and LOS ($r = .21$, $P < .004$). The patients in Group 3 had, on average, longer length of time before initial nursing visit than all other groups (Group 1 = 1.45 days, Group 2 = 1.49 days, Group 3 = 2.91 days; $F = 31.5$, df = 2,176, $P < .001$). We subdivided the initial visits further into 3 groups: postoperative day (POD) 0/1, POD 2/3, and POD 4/+. Mean LOS for POD 0/1 = 5.46 days, POD 2/3 = 6.47 days, and POD 4/+ = 9.25 days ($P < .034$; Fig. 2).