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Virtual Postoperative Visits for New Ostomates

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Postoperative education, discharge instructions, and follow-up appointments provide a foundation for new ostomates after discharge, but a gap in care remains. New ostomates utilize resources twice as much as other colorectal patients. Virtual visits allow visual inspection of the patient while providing verbal support. The purposes of this project were to determine the feasibility of Virtual Postoperative Visits, to define specific issues patients want addressed, and to assess patient satisfaction with a virtual format. In this pilot project, 10 patients attended two outpatient virtual visits following hospital discharge. The virtual visits were conducted using video conferencing software. Descriptive statistics were used to analyze data from a survey assessing patient satisfaction; content analysis described video interactions. All patients successfully completed two virtual visits from their homes. Ninety percent felt these visits helped with ostomy management and agreed they should be part of a discharge plan. All patients felt comfortable with a virtual format. Common themes discussed included pouching and skin irritation. We found that virtual visits are feasible, and patients are satisfied with this format to address goals of care. Future work will focus on large-scale implementation of virtual visits for new ostomates.

KEY WORDS: Ostomy, Telehealth, Transitional care

Approximately 1 million people in the United States live with an ostomy, and more than 120 000 more ostomy-related procedures are performed each year.[1] Disease processes including colorectal cancer, ulcerative colitis, Crohn's disease, diverticulitis, and bowel perforation may require surgical procedures resulting in an ostomy. In addition to stress and subsequent surgery from these disease processes, patients must face the life-altering effects of an ostomy. These patients often experience depression and anxiety during the immediate postoperative period that hinders adaptation, decreases independence, and increases the need for physical, social, and psychological support.[2] Relearning self-care requires interaction between healthcare providers and patients.[3] Unfortunately, limited time during a short inpatient admission does not allow for this much needed interaction. The aims of this project were to determine the feasibility of virtual postoperative visits (VPOVs), to define specific issues patients want addressed in the immediate postoperative period, and to assess whether patients were satisfied with a virtual format. The information found through this project will inform the design of a VPOV as part of the discharge plan for this population.

BACKGROUND AND SIGNIFICANCE

When surgical intervention results in an ostomy, patient distress is significantly increased. Embarrassment and fear of accidents cause patients to avoid family, school, and social gatherings.[4] They must often quit jobs and subsequently have difficulty paying for ostomy supplies.[4] Women admit to more psychological and social issues associated with their ostomies than men.[5] An ostomy can even affect religious practices. Those in the Muslim community report feelings of uncleanliness and unworthiness, which impede attendance at the mosque for prayer.[4]

Living with an ostomy can have long-term psychological and social consequences for patients including disruptions in sleep habits, peristomal skin irritation, and perceived diminished personal hygiene.[6] These persistent, multifaceted issues affect a patient's ability to participate in activities of daily living and contribute to a decrease in quality of life. Depression, suicidal ideations, and low self-esteem are higher in patients with ostomies, even when surgery cures the underlying disease process.[7]

Utilizing interventions aimed at increasing acceptance, establishing ownership, and identifying problems in patients with new ostomies decreases medical issues that hinder independence.[3] Being able to confidently care for the ostomy is the most important indicator of overall satisfaction postoperatively.[8] A wound ostomy continence nurse (WOCN) typically provides postoperative education but may encounter time constraints because of new enhanced recovery protocols.[9] When discharge occurs within a few days of surgery, there is limited time to prepare, both physically and psychologically, for

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managing an ostomy at home. Patients are overwhelmed with information and often unable to understand postoperative instructions. The patient is ill prepared to identify and cope with issues related to ostomy care. Inadequate and infrequent communication between patients and healthcare providers during the postoperative period leads to poorer outcomes.[10]

Postoperative education, discharge instructions, and follow-up appointments provide a foundation for patients leaving the hospital, but a gap in care remains. The patient may not be ready to receive ostomy education preoperatively because of fear, or postoperatively because of pain.[3] Typically, 2 to 4 weeks elapse from hospital discharge to clinic follow-up. It is then that the patient is most at risk of complications.[3] Patients who do not feel equipped to manage the difficulties of a new ostomy return to the hospital for care, often through the emergency department.[11] These patients utilize resources, including hospital-based acute care, twice as much as colorectal patients who do not have an ostomy.[11] Issues associated with ostomy self-care and hospital readmission are well documented, but there is a paucity of information related to facilitating the transition of care from hospital to home.

Although the literature does not specifically address new ostomates, it does demonstrate that telehealth used postoperatively can bridge this gap. Virtual visits occurring during the immediate postoperative period allow earlier identification and treatment of issues.[12] These visits allow for visual inspection of the patient and closely mimic face-to-face visits.[12] Live video provides real-time data regarding wounds, drains, and hydration.[12,13] Those enrolled in a telehealth program for postoperative coronary artery bypass patients were less likely to contact their physicians for problems in the first 3 weeks after discharge.[11] Telehealth has an emerging role in the postoperative period and can supplement face-to-face visits during the initial phase of hospital discharge.

METHODS

Participants

This project was approved by a university institutional review board before implementation. All participants gave written informed consent before undergoing any study procedure. Eligible patients included adults older than 18 years who understood and read English, had no cognitive impairments, and had Internet access. Participants had recent surgery resulting in ostomy formation. Those unable to provide consent or those who did not wish to participate were excluded.

Recruitment

The project took place over a 5-month period, May-September 2017, at a 1000-bed academic medical center in the southeastern United States. Recruitment for this project began at the colorectal surgery clinic, which is within the division of the Department of Gastrointestinal Surgery. The colorectal surgery nurse practitioner (NP), who is a WOCN, assigned to this group identified potential participants and gave them a brochure containing information explaining project protocol during a clinic appointment. The project coordinator, an NP with more than 4 years of experience working with colorectal surgery patients and ostomies, then met these patients preoperatively, where additional questions were answered, and written informed consent obtained. Although the medical center staff worked closely with the researchers, the project was an unfunded pilot study.

Data Collection

In addition to routine postoperative WOCN education and a 2- to 3-week postoperative clinic appointment, 10 patients were scheduled to attend two outpatient VPOVs. These VPOVs bridged the period between hospital discharge and the first face-to-face clinic follow-up visit. The date and time for the first VPOV were scheduled by the project coordinator with the patient before hospital discharge. If the patient did not have a personal laptop computer or tablet with Web camera, a tablet with a built-in camera was provided. Each patient was instructed on use of video software prior to discharge and was given a contact number for the project coordinator. The patient was sent an appointment reminder via text message or email the day before the VPOV.

At the predetermined appointment time, both the project coordinator and the patient logged on to the computer. All patients attended the VPOV from their homes while the project coordinator attended from her office. The VPOVs were recorded using an institutionally approved platform, RealPresence (Polycom, San Jose, CA), a HIPAA-compliant software video conferencing system. If the patients encountered problems logging on, they called the project coordinator for assistance. The VPOVs were scheduled for 20-minute increments but lasted as long as needed to assess the patient. The VPOVs included review of medications, review of intake/output, visual inspection of the surgical site, visual inspection of the stoma and ostomy appliance, discussion of nutritional issues, and discussion of ostomy appliance management. The visit ended when the patient had no further issues to discuss, and all questions were answered to the patient's satisfaction. Approximately 6 hours of patient interaction were recorded.

A synopsis of each visit was sent to the patient's surgeon via the institutional email system. A six-question survey related specifically to patient satisfaction with the VPOV was created by the project team and administered by email after the second visit. Demographic data including age, gender, computer skill, and educational level were collected.

Data Analysis

An inductive content analysis identified major themes of the VPOVs. A categorization scheme to code the content of

patient and provider communication was initially developed by the project coordinator in collaboration with the entire project team. To establish validity of the coding schema, three researchers watched the VPOV videos. All reviewers independently separated the VPOV events into categories that described an action, purpose, or feeling. The research team collaboratively reviewed all phrase descriptors to develop a set of categories and subcategories needed to code the communication episodes until 100% agreement was reached.

The project coordinator then coded all videos using the defined communication categories and subcategories. A total of 761 total communications were recorded. The two additional researchers coded 20% of the videos, and a Cohen's κ was calculated to measure interrater reliability. There was moderate agreement between each additional researcher and the project coordinator, $\kappa = 0.777$ and $\kappa = 0.692$. Using IBM SPSS Statistics version 23.0 (IBM, Armonk, NY), frequencies of communication episodes by category were calculated. Descriptive statistics from the six-question Likert-scale satisfaction survey and patient demographic data were calculated using Microsoft Excel (Microsoft, Redmond, WA).

RESULTS

Demographic Data

All participants were Caucasian, most were women, and the mean age was 39.8 years (range, 20–66 years). Twenty percent of the participants had a high school diploma, 50% had a college degree, and 20% had a postgraduate degree. Half of them considered their computer skills advanced. Diagnoses included Crohn's disease, colorectal cancer, and ulcerative colitis. Surgical procedures included total abdominal colectomy, abdominoperineal resection, low anterior resection, and ileocectomy. Procedures were performed robotically, laparoscopically, and via an open incision. Eighty percent resulted in an ileostomy and 20% in a colostomy. All patients successfully completed two VPOVs. The median time to first VPOV was 4.9 days after discharge (range, 2–7 days) with the second VPOV occurring an average of 10.3 days after discharge (range, 7–14 days).

Content Analysis

The most frequent communication episodes during the VPOV were related to pouching, diet, visualization of the stoma, patient teaching, and reassurance. The most common issue patients discussed during the VPOV was pouching. This included the subcategories of leaking, use of the powder and paste, cutting the wafer, changing the bag, and lack of supplies. Five the 10 participants texted pictures to the project coordinator during the 2 weeks after discharge, allowing consultation with a WOCN without driving to the hospital or clinic. One patient said, "It's comforting knowing I can show you what's wrong and you can help me. It's so easy." During another VPOV, a patient was distressed because the ostomy bag was leaking. All supplies were used in an effort to correctly pouch the stoma, and new bags would not be delivered for 2 days. The project coordinator secured free supplies and delivered them to the patient that day. The patient said she "would not have made it through the weekend without those supplies."

Another major communication category was diet. This included intake and output, appetite, emptying the bag, and fluid intake. None of the patients kept a log of intake and output despite discharge instructions to do so. One patient said, "I just have it in my head." Another said, "I'm glad you reminded me. I will start keeping better track." Despite not keeping a definitive log, no participants returned for an unplanned clinic visit or were readmitted to the hospital during the first 3 weeks after discharge for any reason, including symptoms of dehydration. A way for a healthcare provider to reinforce the importance of monitoring intake and output was provided by VPOVs.

The third most common communication category was visualization of the stoma. This included discussing appearance of the surgical incision, the stoma, and overall appearance of the patient. Being able to see the stoma, the surgical incision, and any issues the participants described was the key to making this project successful. One participant said that she felt "so much better being able to show" the skin irritation around her stoma. She commented that although she liked the home health nurse, she "just felt more confident showing it to someone who sees these all the time." Many times, pouching issues were solved during the VPOV; however, on two occasions, the project coordinator communicated with a WOCN at the hospital for advice, and the patient was called with a solution after the VPOV. Another time, an appointment was made with the WOCN for a more difficult issue. The patient was seen the next day and avoided the emergency room.

Finally, the fourth and fifth most frequent communication categories were patient teaching and reassurance. These categories include physiology, medication, pouching, intake and output teaching, and reassurance about the stoma, surgical incision, and overall progress. A patient commented "I know they told me how to do this at the hospital, but once I was home, I had no idea what to do." Still another admitted that she "could not even watch the WOCN change the bag" while in the hospital. Several patients commented that it was "nice to know that these issues are common." At a critical time postoperatively, VPOVs offered an opportunity for teaching and reassurance. Communication categories and frequencies are outlined in Table 1.

Satisfaction Survey

Scores on the 5-point Likert scale satisfaction survey ranged from 3 to 5. Ninety percent of participants in this project

Table 1. Content Frequencies

Category	Pain (n = 29)	n (%)	Pouching (n = 144)	n (%)	Stoma (n = 41)	n (%)	Mood (n = 37)	n (%)	Diet (n = 104)	n (%)
Subcategory	Incisional	10 (34)	Leaking	28 (19)	Skin irritation	32 (78)	Decreased energy	7 (19)	Measure input/output	26 (25)
	Rectal	7 (24)	Paste/powder	27 (18)	Mucocutaneous separation	5 (12)	Crying	5 (13)	Appetite	21 (20)
	Groin	1 (0.03)	Cutting Wafer	20 (14)	Rectal discharge	4 (0.10)	Emotional outburst	1 (0.03)	Restrictions	4 (0.04)
	Medication	1 (38)	Supplies	22 (15)			Self-intervention	3 (0.08)	No. of bag emptying	24 (23)
			Technique/ position	7 (0.05)			Medication	1 (0.03)	Fluid intake	29 (28)
			No. of bag changes	38 (26)			Worry	20 (54)		
			Air in bag	2 (0.01)						
Category	**MD Communication (n = 41)**	**n (%)**	**Plan (n = 17)**	**n (%)**	**Home Health (n = 33)**	**n (%)**	**Preparedness for D/C (n = 6)**	**n (%)**	**Family Member (n = 18)**	**n (%)**
Subcategory	Appt adjustment	6 (15)	Summary	10 (59)	Helpful	17 (52)	Information	4 (66)	Asks questions	5 (28)
	Medication refill	8 (19)	Reversal of ostomy	7 (41)	Not helpful	10 (30)	Training	2 (33)	Provides information	8 (44)
	Access to care	27 (66)			Conflicting info	6 (18)			Provides assistance	5 (28)
Category	**Patient Teaching (n = 71)**	**n (%)**	**Reassurance (n = 69)**	**n (%)**	**Visualization (n = 87)**	**n (%)**	**Technical Issues (n = 36)**	**n (%)**	**Exercise/Mobility (n = 28)**	**n (%)**
Subcategory	Physiology	18 (25)	Stoma/incision	19 (27)	Incision	18 (21)	Sound	10 (28)	Walking outside	11 (39)
	Medication	9 (13)	Progress	6 (0.09)	Stoma	19 (22)	Video	3 (0.08)	Resuming activities of daily living	14 (50)
	Pouching	18 (25)	Expressing empathy	34 (49)	Overall appearance	20 (23)	Connection	16 (44)	Return to work	3 (10)
	Intake and output teaching	26 (37)			Sent picture via text	19 (22)	IT Support	17 (19)		
					Hand gestures	11 (13)				

strongly agreed that they were comfortable with the virtual format for postoperative visits and felt they could easily communicate with their healthcare providers during the visit. Ninety percent of patients also felt VPOVs helped them manage the ostomy and agreed that VPOVs should be part of the regular discharge plan. The lowest, and only, score of 3 was related to technical sound difficulty. The patient said that "if not for sound quality, they would all be 5." The satisfaction scores are outlined in Table 2.

DISCUSSION

This pilot study focused on implementing VPOVs for new ostomates. The results add to the limited body of literature available on transitional care in this population. Postoperative assessment and early intervention are crucial to promoting safe transitions of care for new ostomates,[1] but with shorter stays in the hospital, this transition is becoming more difficult. A recent study, and the only other study using telehealth for those with ostomies, used technology to offer educational and long-term coping strategies for cancer survivors with ostomies.[14] This study discussed health related quality of life for cancer survivors and their caregivers but did not focus on the immediate issues these patients face.[14] Virtual postoperative visits focused on the immediate postoperative period and demonstrated that patients are satisfied with the virtual visits. As an early intervention, VPOVs were timely and addressed the practical needs of the patients. The positive results from both studies can be included in a postoperative discharge plan that addresses both short- and long-term complications for this population.

Table 2. Patient Satisfaction Survey

Survey Question	Mean Satisfaction Score
The timing of the two virtual postoperative visits was helpful for me.	4.8
The length of the two virtual postoperative visits gave me enough time to voice my concerns.	4.9
I felt the virtual postoperative visits helped me manage my ostomy.	4.8
I could easily communicate with my healthcare provider during the virtual postoperative visits.	4.8
I feel virtual postoperative visits should be a regular part of care for people with new ostomies.	4.9
I am comfortable with the virtual format for postoperative visits.	4.9

1 = Strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree.

Despite education and training from the WOCN before discharge, patients had difficulty with pouching when they arrived home. Training by the WOCN may have occurred at a time when the patient was unprepared to participate, but discharge was not delayed for added teaching. Virtual postoperative visits increase access to care and provide a way to assist with pouching issues. Dehydration is the most common reason that new ostomates are readmitted to the hospital.[11] An early opportunity to emphasize the importance of monitoring intake and output and to reinforce discharge teaching regarding signs and symptoms of dehydration was provided by VPOVs. Future studies need to examine the relationship between virtual visits and readmission rates on a larger scale. The first VPOV appointment was scheduled before hospital discharge, but it was common for the patients to change that appointment because they did not feel well. It is possible that the first VPOV would be more useful if scheduled 3 to 4 days after discharge instead, thus giving the patient more time to get adjusted at home.

Barriers to enrolling a more diverse group of patients into this VPOV pilot study included lack of patient access to technology and the technology limitations of the researchers. Out of 23 patients initially recruited for this project, only 10 had Internet access. Providing a tablet in these cases could not solve the problem of Internet connectivity, and 13 patients had to be excluded. At the time of this project, the researchers did not have access to a mobile solution for VPOVs. Most patients had a smartphone, however, and developing a HIPAA-compliant app for the phone could increase the number of patients able to participate. Partnering with rural clinics or hospitals in smaller communities throughout the state could also increase participation. Instead of connecting to their personal Internet, patients could be seen by the colorectal NP or WOCN at the rural clinic using telehealth equipment. The same goals would be achieved without the stress of software and Internet issues for the patient. Telehealth is a useful healthcare option for those in rural, underserved populations and offers providers a way to manage many ostomy-related issues.[14]

Telehealth offers an opportunity for healthcare providers to care for patients who otherwise would not have access to high-quality specialty care.[14] Many patients seen at large academic medical centers drive long distances for clinic and hospital visits. For them, travel to the hospital for problems is both expensive and anxiety provoking. One participant in this project said, "There's no way I can ride 4 hours one way in the car for an appointment and 4 hours back. I'm in too much pain, and my ostomy bag will need to be changed on the road." Findings from this project show that using technology in the form of a virtual visit is a reasonable way to connect with patients in the early period after discharge without making them drive long distances.

LIMITATIONS

Several limitations are associated with this pilot study. The sample size was small and recruited from a single facility, which limits the generalizability of the findings. Although 48 hours after discharge was considered a proper time to schedule the first VPOV, the length of time from hospital discharge to first VPOV varied widely from 2 to 7 days. The limited scope of this project did not allow for exploration of issues related to the technology, cost, or workflow requirements to implement a VPOV program. Each VPOV occurred during the postoperative global period. Future studies should address billing issues to determine how the use of virtual visits enhances patient satisfaction while potentially reducing costs.

CONCLUSION

The immediate postoperative period is a tenuous time for new ostomates. Bridging the transition period between hospital discharge and initial clinic follow-up by using culturally sensitive, educational, and timely interventions should be a priority in this population. Healthcare providers should strive to help these patients return to as close to their normal function as possible. Virtual visits could be used to supplement face-to-face appointments, especially in the early postoperative period. Using videoconferencing and telehealth equipment for postoperative visits allows adequate examination of the patient, streamlines care, reduces anxiety, and monitors for acute complications.[13] Telehealth is an evolving tool that can be used during the immediate postoperative period to empower each patient to reach the highest level of health.

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