

# Utilization of a phone and computer-based application to optimize surgical preparedness and decrease post-surgical readmissions

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## Introduction

Enhanced Recovery After Surgery (ERAS) has improved perioperative care by standardization of processes developed by a multidisciplinary team, utilization of evidence-based practices, and patient feedback for the efficacy of educational materials and methods. In addition, cost and quality of care have been optimized by implementing ERAS. Unplanned readmissions have not been positively impacted by ERAS in most cases (Adamina et al., 2011; Greco et al., 2014; Hendren et al., 2011; Khreiss et al., 2014; Martin et al., 2016; Thiele et al., 2015). We designed a pilot implementing Twistle, a perioperative communications platform, to optimize perioperative outcomes, decrease unplanned readmissions to the hospital after discharge, and decrease readmissions length of stay. The workflows and prompts for specific benchmarks will be embedded in Twistle to address each of the identified perioperative risk factors.

## Methods

Our ERAS lead surgeon completed an in-depth chart review on all ERAS readmissions between January 1, 2014 and December 31, 2016. These data were then reviewed by the ERAS multidisciplinary team for accuracy. Preventable readmissions fell into four categories; dehydration, pain management, ileus, and surgical site infection. Workflows and educational materials were developed to address these four issues as well as a prehabilitation component for preoperative patient engagement. The pilot was initiated January 2017 and is ongoing with all colorectal ERAS patients with the capability of using a phone or computer-based application. All colorectal ERAS patients were given the information on the Twistle application by their surgeon. Patients were invited to download the application during the ERAS preoperative education class. Patients willing and able to participate were then given verbal and written instructions on the use and purpose of the application.

## Results

To date, 19 patients have participated in the perioperative Twistle pilot. Two patients initially accepted the invitation and then declined to participate with the application. Two patients with redness around their incisions, were instructed to keep their discharge clinic appointment, small areas were opened and the patients were not readmitted to the hospital with subsequent good reports per the application. One patient reported nausea, was instructed to reduce his diet to clears for a couple days and drink protein supplements and resolved at home. One patient reported dark urine and feeling full; he/she was coached that fluids were more important than full meals and resolved within 48 hours. Subsequent Twistle prompts revealed resolution of the situation. Average cost reduction for each avoided readmission is \$15,366 (Sutherland et al., 2015) for an average length of stay of 3.3 days. To

date, four readmissions have been avoided (\$61,464). One patient was readmitted for less than 24 hours for observation for a potential leak but was then cleared. Readmission rate for all participating perioperative colorectal patients has decreased from 14.6% to 9.1% with Twistle and other readmission reduction initiatives.

## Conclusions

Preliminary data indicates utilization of Twistle for perioperative communication, monitoring, and education for the pilot has proven, to date, to decrease hospital readmissions. In addition, anecdotal findings suggest that use of Twistle increases patient and staff satisfaction, and optimizes outcomes for perioperative patients. Final data will be analyzed at the conclusion of the pilot.

## References

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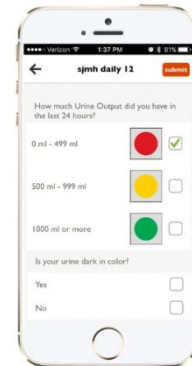
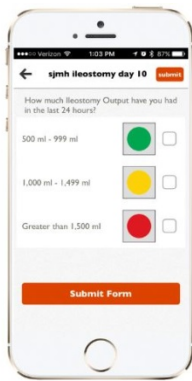
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## WORKFLOW STATUS TRACKER

Filter by name:  Show: All Sort by: Initiated (Newest) Has Status:

Patient	Start Date	HHC	Ileostomy Q	Welcome Home	DoloV	IleoV	Lovenox	CareV	Pain 2	Sleep	Pain 3	D3	Lifting	Pain 19	D19	Pain 22	D22	Pain 25	D25	Pain 28	D28	30	60	90	
John Doe	Jan 25 10:42 pm	Jan 25 10:42 pm	Jan 25 2:57 pm	Jan 25 1:51 pm		Jan 25 1:58 pm	Jan 25 2:04 pm	Jan 25 2:09 pm	Jan 25 6:07 am	Jan 25 2:19 pm	Jan 25 4:22 pm	Jan 25 2:25 pm	Jan 25 2:17 pm	Jan 25 6:38 am	Jan 25 6:58 am	Jan 25 6:40 am	Jan 25 6:40 am	Jan 25 6:40 am	Jan 25 6:41 am	Jan 25 6:41 am	Jan 25 6:42 am	Jan 25 6:42 am	Jan 25 6:42 am	Jan 25 6:42 am	Jan 25 6:42 am
Jane Doe	Jan 25 11:14 am	Jan 25 10:16 am	Jan 25 0:16 am	Jan 25 1:57 am		Jan 25 1:37 am		Jan 25 2:27 pm	Jan 25 1:5 am	Jan 25 10:12 am	Jan 25 10:12 am	Jan 25 10:12 am	Jan 25 1:57 pm	Jan 25 10:41 am	Jan 25 10:42 am	Jan 25 10:46 am	Jan 25 10:47 am	Jan 25 10:52 am	Jan 25 10:53 am	Jan 25 10:59 am	Jan 25 11:02 am	Jan 25 11:02 am	Jan 25 11:02 am	Jan 25 11:02 am	Jan 25 11:02 am
Mary Jones	Jan 25 12:40 am	Jan 25 2:12 am	Jan 25 9:33 am	Jan 25 9:33 am		Jan 25 9:32 am	Jan 25 9:31 am	Jan 25 9:31 am	Jan 25 9:31 am	Jan 25 9:33 am	Jan 25 9:33 am	Jan 25 9:33 am	Jan 25 10:00 am	Jan 25 9:44 am	Jan 25 9:44 am	Jan 25 9:46 am	Jan 25 9:46 am	Jan 25 9:48 am	Jan 25 9:48 am	Jan 25 9:48 am	Jan 25 9:48 am	Jan 25 9:48 am	Jan 25 9:48 am	Jan 25 9:48 am	Jan 25 9:48 am
Richard Johnson 4/7/1981 12345	Jan 24 8:57 pm	Jan 24 8:57 pm	Jan 24 8:57 pm	Jan 24 8:57 pm		Jan 24 9:33 am	Jan 24 9:33 am	Jan 24 9:33 am	Jan 24 9:33 am	Jan 24 9:33 am	Jan 24 9:33 am	Jan 24 9:33 am	Jan 24 10:25 am	Jan 24 9:23 am	Jan 24 9:23 am	Jan 24 9:24 am	Jan 24 9:24 am	Jan 24 9:26 am	Jan 24 9:27 am	Jan 24 9:27 am	Jan 24 9:28 am	Jan 24 9:28 am	Jan 24 9:28 am	Jan 24 9:28 am	Jan 24 9:28 am



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