Development and Implementation of a Surgical Navigation Center (SNC) to Optimize Underprivileged High Risk Surgical Patient Population

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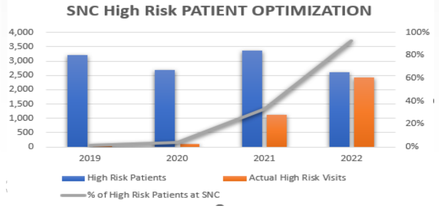
INTRODUCTION

Patients that are not medically optimized are more likely to be cancelled on the day of an elective surgery. No access to preventative care, lack of comorbidity management, and financial constraints are some of the barriers faced by our under-privileged population. Our organization is a 292 bed, not for profit hospital, with an inpatient operating room (O.R) consisting of 12 O.R.s and 2 stand alone ambulatory surgical centers. Inpatient O.R. surgical case mix ranges from complex open cases to minimally invasive surgeries including but not limited to Cardiac, neuro, orthopedic, vascular, Thoracic, Colorectal, Gynecology, Oncology, and Robotic cases. Our yearly volume is over 16,000 cases. Surgical Navigation Center was created to improve patient outcomes by managing patient's comorbidity, and obtaining medical clearances, and facilitating Enhances Recovery After Surgery (ERAS). SNC provides comprehensive preoperative testing including lab, imaging and diagnostic testing located in one single location. SNC is instrumental in providing preoperative clearance for patients with limited or no access to preventative care access and no health insurance. A Health Assessment Questionnaire is administered over the phone after the surgery is scheduled and patients obtaining score of ≥ 7 is considered high risk and will be followed up in SNC. Advanced age, presence of comorbidity, recent history of cerebrovascular/ cardiac event, BMI >30, history or current cancer diagnosis and related treatments are the components used to determine the individualized risk score.

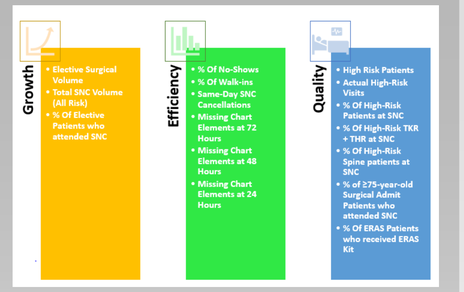
IMPLEMENTATION

The concept of SNC was originated out of necessity to optimize patients undergoing high acuity surgery with comorbidities that were poorly managed; putting patient at risk for post operative surgical site infections, prolonged hospital stay, pneumonia, and other post operative complications. The SNC was initially established in 2019, however COVID-19 pandemic presented challenges with staffing and in-person visit limitations. The program was revamped in January 2022 with a goal of 100% of high-risk patients to be seen in SNC a week prior to their elective surgery. The SNC is located on the main Hospital campus.



SNC Score card

Surgical Navigation Center- Efficiency Scorecard	2019	2020	2021	Jan-2022	Feb-2022	Mar-2022	Apr-2022	May-2022	Jun-2022	Jul-2022	Aug-2022	Sep-2022	Oct-2022	Nov-2022	Dec-2022	Year to Date Total	Year to Date Goal
Growth																	
Elective Surgical Volume	10,720	8,980	8,968	732	796	970	863	914	927	861	859	940	968	1003	868	10,701	
Total SNC Volume (All Risk)	963	992	2,080	302	313	318	259	281	255	287	313	317	312	307	299	3,563	3,671
Efficiency																	
% of No-Shows	-	-	5%	2%	2%	3%	4%	1%	1%	1%	1%	2%	1%	1%	2%	2%	≤ 1%
% of Walk-ins	-	-	4%	0%	4%	9%	7%	7%	7%	7%	6%	3%	6%	9%	7%	6%	≤ 5%
Same-Day SNC Cancellations	-	-	5%	4%	4%	7%	8%	7%	6%	6%	4%	5%	6%	5%	5%	6%	≤ 5%
Missing Elements at 72 Hours						43%	48%	43%	37%	51%	38%	48%	47%	46%	45%	45%	≤ 15%
Missing Elements at 48 Hours						23%	27%	18%	18%	15%	23%	21%	19%	20%	17%	20%	≤ 10%
Missing Elements at 24 Hours						18%	11%	10%	10%	10%	10%	10%	10%	10%	8%	11%	≤ 5%
Quality																	
High Risk Patients	3,216	2,694	3,364	237	201	220	218	231	246	202	225	239	217	207	170	2,613	
Actual High-Risk Visits	51	114	1,119	186	181	204	199	211	231	193	217	229	208	194	165	2,418	
% of High-Risk Patients at SNC	2%	4%	33%	78%	90%	93%	91%	91%	94%	96%	96%	96%	96%	94%	97%	93%	100%
% of High Risk TKR + THR at SNC	-	-	-	89%	97%	96%	96%	81%	91%	81%	96%	84%	100%	100%	100%	93%	100%
% of High-Risk Spine patients at SNC	-	-	-	82%	82%	92%	93%	100%	100%	91%	100%	98%	100%	100%	96%	94%	100%
% of ≥75 y.o. Surgical Admit Patients who attended SNC	-	-	36%		83%	80%	87%	75%	82%	91%	93%	100%	88%	88%	96%	88%	100%

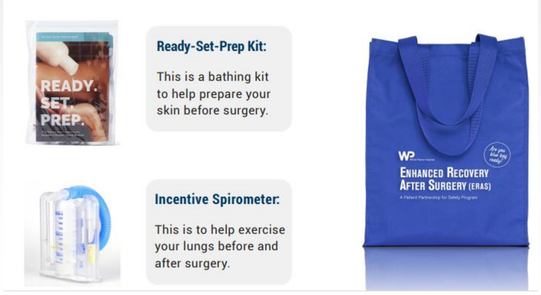


Growth: Monitoring SNC Volume allows in planning appropriate staffing and operational resources. It is an excellent benchmarking tool for organization to identify the needs of the department.

Efficiency: The SNC program efficiency affect surgeon and surgical office buy-in. Monitoring and identifying areas to improve SNC workflow helps minimize the barriers which cause patient no-show or surgery cancellations.

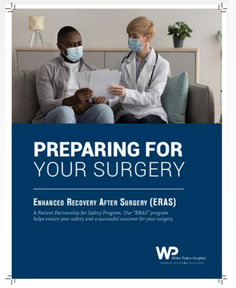
Quality: It is the most important matric of SNC as the primary goal of SNC is to optimize the high-risk patients, who are undergoing a major surgical procedure. High acuity, procedures >2 hours, >70 years old, and high-risk procedures, are some of the criteria need to be included when evaluating the program outcomes.

FACTORS TO DEVELOP SUCCESSFUL PROGRAM



PATIENT RESOURCES

- Pre-habilitation
- Smoking Cessation Program
- Infection Prevention strategies
- ERAS Education
- I-COUGH and Incentive Spirometry teaching
- Medication reconciliation
- Additional clearances obtained
- One Stop Testing



SNC TEAM AND WORKFLOW

The team consists of nurses, internists, nurse practitioners, surgical navigators, patient educators, patient quality nurse, phlebotomists, case manager, and ancillary staff. Ad hoc members include O.R. and pre surgical department manager, surgery scheduler, chair of surgery, Chief of anesthesiology. Patient centered algorithm determines the pre surgical clearance required for the individual patient. Patient undergoing high risk surgery is provided with ERAS kit and education for a proper use. The Kit includes incentive spirometer, high carbohydrate drink, chlorhexidine gluconate wipes, antimicrobial soap, and the surgical guide booklet.

OUTCOMES

From January 01, 2022, to December 31, 2022, 3563 patients were seen at SNC which comprised 33.6% of our total surgical patient volume. 25.7% of the in-patients were deemed high risk (n= 2613) based on the 'Health Assessment Questionnaire'. 93% of the high-risk patients (n=2418) were optimized and cleared for surgery through SNC. The percentage of patients seen in 2021 and 2020 were 33% and 4% respectively, which depicts efficiency and growth of the program.

BARRIERS

The barriers are twofold; systemic and patient related. Some of the systemic barriers that prevent high risk patients from being evaluated through SNC are lack of surgeon buy-in, surgeries scheduled with short notice, incomplete patient charts, and no prior information about the impending SNC visit. Patient related barriers include no transportation, physical and cognitive disability, lack of time commitment, and long commute to SNC.

CONCLUSION

SNC eliminates the need to make multiple appointments and streamlines the rigorous surgical clearance process. ERAS and smoking cessation education prior to surgery prepares the patient for successful recovery. SNC provides an environment that is conducive to learning and allowing the patient to be an active participant in their surgical care plan. SNC is instrumental in minimizing same day case cancellations by managing comorbidities of high-risk surgical patients within a reasonable expectation to maximize safe patient outcome.

References:

1. White Plains Hospital. https://www.wphospital.org/services/surgical-services/surgical-navigation-center. 2. Quality Scorecard, White Plains Hospital.