

**Vancouver General Hospital
Enhanced Recovery After Surgery Protocols**

Intervention	Radical Cystectomy (September 6th, 2017. Last update: January 11th, 2018)	Colorectal surgery (September 6th, 2017. Last update: January 11th, 2018)	Gyne. Oncology surgery (September 6th, 2017. Last update: January 11th, 2018)
Pre-operative Components			
Documentation	Use of standardized ERAS order set.	Use of standardized ERAS order set	Use of standardized ERAS order set
Education	Education started in surgeon office. Patient booklet given in surgeon office	Education started in surgeon office. Patient booklet given in surgeon office	Education started in surgeon office. Patient booklet given in surgeon office
	Education reinforced in pre-admission clinic. Pre admission visit for all ERAS patients	Education reinforced in pre-admission clinic. Pre admission visit for all ERAS patients	Education reinforced in/by pre-admission clinic. Pre admission visit for high risk ERAS patients
Exercise	Described in patient booklet and reinforced in surgeon office and pre-admission clinic.	Described in patient booklet and reinforced in surgeon office and pre-admission clinic.	Described in patient booklet and reinforced in surgeon office and pre-admission clinic.
Incentive spirometry	Described in patient booklet and given on POD 0	Described in patient booklet and given on POD 0	Described in patient booklet and given on POD 0
Nutrition	Normal diet	Normal diet	Normal diet
Carbohydrate loading	Clear liquid juice 500ml in evening and 250ml in the morning 1 hour before hospital check-in time	Clear liquid juice 500ml in evening and 250ml in the morning 1 hour before hospital check-in time	Clear liquid juice 500ml in evening and 250ml in the morning 1 hour before hospital check-in time
Multimodal analgesia	Acetaminophen 975 mg PO 90 min pre-op	Acetaminophen 975 mg PO 90 min pre-op	Acetaminophen 975 mg PO 90 min pre-op
Bowel prep	No/selective bowel prep. Oral antibiotics with mechanical bowel prep	No/selective bowel prep. Oral antibiotics with mechanical bowel prep	Not applicable
Bowel motility	No	No	No
VTE prophylaxis	Heparin 5000 units subcutaneous	Heparin 5000 units subcutaneous	Heparin 5000 units subcutaneous
Antibiotic prophylaxis	Dosage based on BMI, completed within 60 min of surgical start time	Dosage based on BMI, completed within 60 min of surgical start time	Dosage based on BMI, completed within 60 min of surgical start time
Glycemic control	Starting Sept 2017: Check HgA1C pre-op and refer to Endocrinology if >8.5	Starting Sept 2017: Check HgA1C pre-op and refer to Endocrinology if >8.5	Starting Sept 2017: Check HgA1C pre-op and refer to Endocrinology if >8.5
	Glycometer in PCC, inform anesthesiologist if >8.0 mmol/L on non-diabetic patient or diabetic patient without Pre-printed Orders for Diabetic Patients : Elective Surgery	Glycometer in PCC, inform anesthesiologist if >8.0 mmol/L on non-diabetic patient or diabetic patient without Pre-printed Orders for Diabetic Patients : Elective Surgery	Glycometer in PCC, inform anesthesiologist if >8.0 mmol/L on non-diabetic patient or diabetic patient without Pre-printed Orders for Diabetic Patients : Elective Surgery
SSI bundle	Chlorhexidine wipes in the evening and in the morning in Perioperative Care Centre, and active pre-warming	Chlorhexidine wipes the night before and in the morning in the Perioperative Care Centre, and active pre-warming	Active pre-warming

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Intra-operative Components			
Goal directed fluid therapy	Encourage for most procedures as cases are typically open & >3.5 hours, should be used in all ASA 3 patient with the arterial line to monitor SVV and SPV (with GE Monitor) or SVV and CO with EV 1000 monitor.	Encouraged for patients with 2 of the following--open procedure, >3.5 hours, extremes of BMI <18 and > 35, expected blood loss > 500 cc. Typically used in ASA 3 and greater patient. Either arterial line with SVV and SPV (GE monitor) or non-invasive ClearSight or Massimo used	Encouraged for patients with 2 of the following--open procedure, > 3.5 hours, extremes of BMI <13 and > 35, expected blood loss >500 cc. Typically used in ASA 3 and greater patients. Typically arterial line with SVV and SPV (GE monitor) or non-invasive ClearSight or Massimo used
	Typically still put in arterial lines in robotic cases due to limited access to patient, so SVV and SPV can be done		
	If blood loss is expected to be less than 500 and/or ASA 1 or 2 patients then one can instead use zero balance fluid therapy (expectation that fluids would be in the rate of 1.5-5 ml/kg/hr + EBL X2)	If blood loss is expected to be less than 500 and/or ASA 1 or 2 patients then one can instead use zero balance fluid therapy (expectation that fluids would be in the rate of 1.5-5 ml/kg/hr + EBL X2)	If blood loss is expected to be less than 500 and/or ASA 1 or 2 patients then one can instead use zero balance fluid therapy (expectation that fluids would be in the rate of 1.5-5 ml/kg/hr + EBL X2)
Multimodal antiemetic prophylaxis	Apfel score minus # of multimodal antiemetic given ≤ 1. Commonly used agents: Dexamethasone, Ondanestron, Haloperidol, use of TIVA, use of maxeran or use of P6 stimulation	Apfel score minus # of multimodal antiemetic given ≤ 1. Commonly used agents: Dexamethasone, Ondanestron, Haloperidol or the use of TIVA	Apfel score minus # of multimodal antiemetic given ≤ 1. Commonly used agents: Dexamethasone, Ondanestron, Haloperidol or the use of TIVA
Antibiotic redosing	For OR>3hrs +/-EBL >1.5L AND Cefazolin was given as prophylaxis abx	For OR>3hrs +/-EBL >1.5L AND Cefazolin was given as prophylaxis abx	For OR>3hrs +/-EBL >1.5L AND Cefazolin was given as prophylaxis abx
Temperature control	Maintain normothermia ≥ 36 °C with forced air warming	Maintain normothermia ≥ 36 °C with forced air warming	Maintain normothermia ≥ 36 °C with forced air warming
Epidural	All open cases will have either an epidural or rectus sheath catheters	For most open cases	For selected open cases
Bilateral Rectus Sheath Catheters	All open cases will have either an epidural or rectus sheath catheter	Rarely inserted	Bilateral --Single shot local anesthesia infiltration of the rectus sheath by the surgeon at the end of the procedure (see LA by surgeon on nursing OR sheet)
Multimodal analgesia	Either ≥2 of the following interventions given intra-op OR ≥1 of the following plus pre-op Acetaminophen PO	Either ≥2 of the following interventions given intra-op OR >1 of the following plus pre-op Acetaminophen PO	Either ≥2 of the following interventions given intra-op OR >1 of the following plus pre-op Acetaminophen PO
	Primary techniques: Epidural catheter or Bilateral rectus sheath catheters inserted by surgeon at the end of the procedure	Primary techniques: epidural or lidocaine infusion	Primary techniques: lidocaine infusion vs epidural
	Additional adjuncts:	Additional adjuncts:	Additional adjuncts:
	Ketamine either single dose (0.25-0.5mg/kg) and +/- infusion 0.1 to 0.25 mg/kg/hr)	Ketamine either single dose (0.25-0.5mg/kg) and +/- infusion 0.1 to 0.25 mg/kg/hr)	Ketamine either single dose (0.25-0.5mg/kg) and +/- infusion 0.1 to 0.25 mg/kg/hr)
	Lidocaine infusion 2 mg/kg/hr., based on ideal body weight, if no epidural or rectus sheath catheters	Lidocaine infusion 2 mg/kg/hr., based on ideal body weight, if no epidural	Lidocaine infusion 2 mg/kg/hr., based on ideal body weight, if no epidural
Ketorolac 15-30 mg	Ketorolac 15-30 mg	Ketorolac 15-30 mg	

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	Dexmedetomidine infusion 0.2-0.7 ug/kg/hr for selected patients	Dexmedetomidine infusion 0.2-0.7 ug/kg/hr for selected patients	Dexmedetomidine infusion 0.2-0.7 ug/kg/hr for selected patients
	Rarely Magnesium sulfate infusion 30-50mg/kg (2.5mg) post induction and/or 8-10mg/kg/hr	Rarely Magnesium sulfate infusion 30-50mg/kg post induction and 8-10mg/kg/hr	Rarely Magnesium sulfate infusion 30-50mg/kg post induction and 8-10mg/kg/hr
Glycemic control	Maintain normoglycemia. Insulin IV/sc for glucose > 10. Glucometers every 2 hours if HbA1C > 6.0	Maintain normoglycemia. Insulin IV/sc for glucose >10. Glucometers every 2 hours if HbA1C > 6.0.	Maintain normoglycemia. Insulin IV/sc for glucose > 10. Glucometers every 2 hours if HbA1C > 6.0

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Post-op components			
Documentation	Use of standardized ERAS order set and clinical pathway with daily milestones	Use of standardized ERAS order set and clinical pathway with daily milestones	Use of standardized ERAS order set and clinical pathway with daily milestones
Diet	POD 0: sips of water or ice chips. POD 1-2: Boost Plus Tetra and water (max 500ml/12hr). POD 3-4: Full fluid diet and Boost Plus as tolerated. POD 5: Post-surgical transition diet.	POD 0: Full fluid diet. POD 1 & onwards: Full fluid diet to Post-surgical Transition Diet to DAT as tolerated with Boost Plus Tetra BID.	POD 0: Full fluid die to Post-surgical Transition diet to diet as tolerated. Boost Plus Tetra BID for selected cases.
Activity	POD 0: Out of bed. Starting POD 1: Up for 3 meals and walk X 2 daily	POD 0: Out of bed. Starting POD 1: Up for 3 meals and walk X 2 daily	POD 0: Out of bed. Starting POD 1: Up for 3 meals and walk X 2 daily
Multimodal analgesia	Acetaminophen QID PO +/- epidural catheter/rectus sheath	Acetaminophen QID PO +/- epidural catheter/Patient control analgesia	Acetaminophen QID PO +/- Patient control analgesia
PONV treatment	Ondansetron 4 mg IV/PO Q8H x 3 doses	Ondansetron 4 mg IV/PO Q8H x 3 doses	Ondansetron 4 mg IV/PO Q8H x 3 doses
IV fluid management	D5 1/2 NS and saline lock POD 4 when unless pt is not drinking well (i.e. < 600mL/12hr)	D5 1/2 NS and saline lock POD 1 when unless pt is drinking >600mL/12hr	D5 1/2 NS and saline lock POD 1 when unless pt is drinking >600mL/12hr
Bowel motility	Gum chewing 15 mins TID	Gum chewing 15 mins TID	Gum chewing 15 mins TID
Tubes/drains	Avoidance of prophylactic NGT and drains	Avoidance of prophylactic NGT and drains	Not applicable
Glycemic control	Maintain normoglycemia < 8.1	Maintain normoglycemia < 8.1	Maintain normoglycemia < 8.1
SSI bundle	Leave dressings to primary closed wounds until POD #3. Change if saturated	Leave dressings to primary closed wounds until POD #3. Change if saturated.	Leave dressings to primary closed wounds until POD #2. Change if saturated.
Discharge criteria			
	Independent with ADLs	Independent with ADLs	Independent with ADLs
	Pain managed on oral analgesics	Pain managed on oral analgesics	Pain managed on oral analgesics
	Tolerating regular diet	Tolerating regular diet	Tolerating regular diet
	Passing gas OR has had a bowel movement	Passing gas OR has had a bowel movement	Passing gas OR has had a bowel movement
	Able to self manage ostomy and irrigate pouch if required	Able to self manage ostomy (if applicable)	