SOCIETY FOR AMBULATORY ANESTHESIA
Outpatient • Office Based • Non-Operating Room

2022 SAMBA ANNUAL MEETING
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Lessons learned as a regional anesthesia director

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Disclosures

- I own stock in Butterfly Network, Inc.

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Guiding questions

How do you formulate, implement, and "sell" a brand-new regional block service in an ASC?

What are some of the key workflow issues needed to jumpstart a regional block program?

How do you define success? How do you sustain ongoing success?

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The Josie Robertson Surgery Center (JRSC)

- Short stay ambulatory surgery hospital
- Case mix:
  - 64% Outpatient
  - 36% Ambulatory extended recovery (AXR)
- Designed for optimal patient experience and operational efficiency

NOT licensed inpatient beds!!---
"1 midnight" limit

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Proposed "complex" cancer surgeries at JRSC

- **Breast**: Mastectomy +/- implant-based reconstruction
- **Gynecology**: Robotic hysterectomy
- **Head & Neck**: Thyroidectomy
- **Urology**: Robotic prostatectomy; nephrectomy

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PST and Preop Instructions	Preoperative Education •Clear fluids up to 2 hours before *scheduled* arrival time •Education about preoperative paravertebral nerve blocks •Gabapentin 300 mg preop prior to OR transfer •Emend (Aprepitant) for patients with PONV Risk Score of 4 •Preoperative warming
Perioperative Fluid Management	•Non-Restrictive Fluid Therapy (1-2 liters/case)
Intraoperative Anesthetic Technique	•MAC: propofol infusion with surgical local anesthesia infiltration (lumpectomy) •GA with LMA or ETT (mastectomy with or without reconstruction)
Regional Anesthesia	ERAS: Mastectomy Regional Anesthesia: Preoperative paravertebral blocks (PVB)
Analgesics-Opioid & Non-Opioid	•IV Ketorolac 30mg(15mg for age ≥65 or < 50 kg) during closure on all breast and combined procedures as standard. (exceptions to be noted by surgical staff). •Goal to minimize narcotic use through multimodal therapy.
Antiemetics	As per MSKCC PONV Guidelines
Local Infiltration	For outpatients: Continue local anesthesia infiltration with bupivacaine. For AXR Mastectomies: Not generally needed if PVB provided. Role of bupivacaine, or liposomal bupivacaine (Exparel ®) to be determined.
Outcomes and Metrics	Assess and emphasize meaningful outcomes : •Return ADLS, Return to work, Patient satisfaction (Quality of Recovery surveys) •PACU length of stay •Compliance with protocol •Pain and PONV

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2016 JRSC Regional Anesthesia Team

4 young Jedis

Dr. Rebecca "Obi-Wan Kenobi" Twersky

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Issues/challenges

This will cause major delays

I've done these cases without blocks for years, why now?

What if there's a complication?

You're going to stick a needle where?!

These are advanced blocks, too difficult to learn

Just do a GA

How will we "win over:"

- Surgeons: breast & plastics surgeons
- Patients
- Nurses
- Other anesthesiologists in my department

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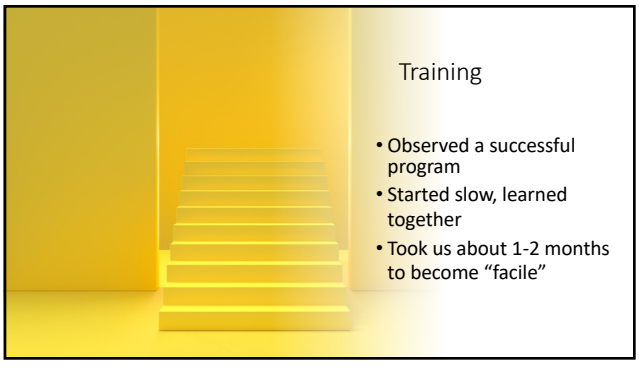

Training

- Observed a successful program
- Started slow, learned together
- Took us about 1-2 months to become "facile"

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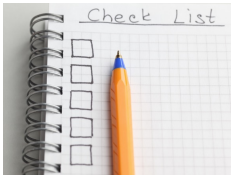
Standardize supplies and equipment



JRSC Regional Block Cart
Drawers

Top of cart: drug labels (midazolam, fentanyl, lidocaine, dexamethasone, clonidine, ropivacaine, lidocaine, bupivacaine, saline, Normosol)

1. Medications (stocked by pharmacy)
   1% lidocaine
   0.5% bupivacaine
   0.5% ropivacaine
   PF clonidine (100mcg/mL)
   PF dexamethasone (10mg/mL)
   PF saline vials (10mL)
   Intralipid + tubing
2. Chloraprep, betadine, alcohol swabs, tegederm, marking pens
3. Block needles (Pajunk 22G x 80MM, 22G x 50MM, 21G x 100), Luerlock tip caps, tape
4. Syringes (20mL, 10mL, 5mL, 1mL), 3 way stop-cocks, 19G & 25G needles
5. "BLOCK TRANSPORT KIT" (ziplock bag contains phenylephrine, glycopyrrolate, ephedrine vials, saline bags for dilution, and needles and syringes); Sterile gloves, Derma 4X4 sterile gauze packets, adhesive sterile drapes, sterile transducer covers, and single-use OR towels
   Laminated LAST guidelines, patient-friendly handout about blocks

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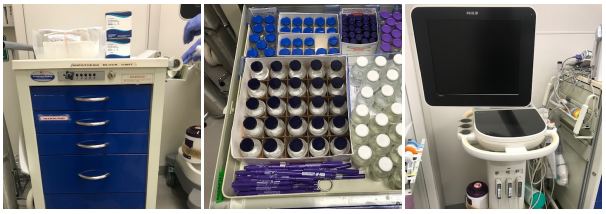

Equipment

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Personnel

Block Nurse role

- Dedicated Block RN
- Procedural Checklist
- Time out for safety
- Monitoring standards
- Assist with positioning

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Education

- Surgeon faculty meetings
- Nursing inservice and Q/A sessions
  - Perianesthesia nursing
  - OR nursing
  - Pre-surgical testing nurse practitioners
  - PACU nursing and APP staff
  - Office-based nurses (surgeon's offices)
- Anesthesia staff and faculty meetings
- Patient education materials

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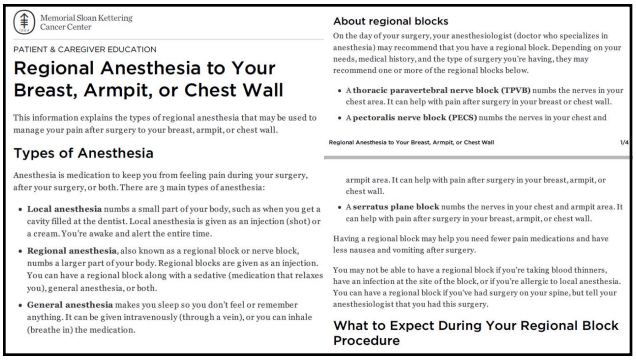

Memorial Sloan Kettering Cancer Center

PATIENT & CAREGIVER EDUCATION

Regional Anesthesia to Your Breast, Armpit, or Chest Wall

This information explains the types of regional anesthesia that may be used to manage your pain after surgery to your breast, armpit, or chest wall.

Types of Anesthesia

Anesthesia is medication to keep you from feeling pain during your surgery, after your surgery, or both. There are 3 main types of anesthesia:

- **Local anesthesia** numbs a small part of your body, such as when you get a cavity filled at the dentist. Local anesthesia is given as an injection (shot) or a cream. You're awake and alert the entire time.
- **Regional anesthesia**, also known as a regional block or nerve block, numbs a larger part of your body. Regional blocks are given as an injection. You can have a regional block along with a sedative (medication that relaxes you), general anesthesia, or both.
- **General anesthesia** makes you sleep so you don't feel or remember anything. It can be given intravenously (through a vein), or you can inhale (breathe in) the medication.

About regional blocks

On the day of your surgery, your anesthesiologist (doctor who specializes in anesthesia) may recommend that you have a regional block. Depending on your needs, medical history, and the type of surgery you're having, they may recommend one or more of the regional blocks below.

- A **thoracic paravertebral nerve block (TPVB)** numbs the nerves in your chest area. It can help with pain after surgery in your breast or chest wall.
- A **pectoralis nerve block (PECS)** numbs the nerves in your chest and armpit area. It can help with pain after surgery in your breast, armpit, or chest wall.
- A **serratus plane block** numbs the nerves in your chest and armpit area. It can help with pain after surgery in your breast, armpit, or chest wall.

Having a regional block may help you need fewer pain medications and have less nausea and vomiting after surgery.

You may not be able to have a regional block if you're taking blood thinners, have an infection at the site of the block, or if you're allergic to local anesthesia. You can have a regional block if you've had surgery on your spine, but tell your anesthesiologist that you had this surgery.

What to Expect During Your Regional Block Procedure

Regional Anesthesia to Your Breast, Armpit, or Chest Wall 1/4

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Workflow issues to consider

- Who gets a block?
- How to alert periop team that patient is getting a block?
- How do we standardize orders for block patients?
- How do we position/monitor patient for a block?
- How do we get first cases in the OR without delay?
- How do we manage potential complications?
- How do we track quality of recovery outcomes?

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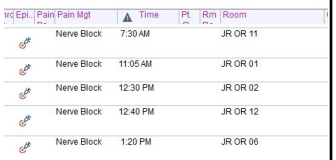
Workflow

- Patient selection: Procedure type determines "block eligibility"
- Team reminders: Automated daily email
- "Block Icon": Initiates workflow for periop team
- Standardized order sets
- Same care regardless of day/time
- Dedicated block attending



Epi..	Pain	Pain Mgt	Time	Pt.	Rm	Room
		Nerve Block	7:30 AM			JR OR 11
		Nerve Block	11:05 AM			JR OR 01
		Nerve Block	12:30 PM			JR OR 02
		Nerve Block	12:40 PM			JR OR 12
		Nerve Block	1:20 PM			JR OR 06

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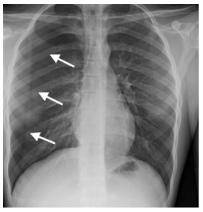
Possible Risks/Side Effects of paravertebral blocks

- Hypotension
- Inadvertent epidural spread
- Bradycardia
- Vasovagal
- Horner's Syndrome
- LAST
- Pleural puncture
- Pneumothorax



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Management of Suspected Pneumothorax

1. Patients suspected to have developed pneumothorax preoperatively will be evaluated by the Attending Anesthesiologist and a member of the surgical team.
2. Patient will have oxygen administered by nasal cannula or face mask and monitored continuously with standard GE monitors.
3. A stat portable Chest X-ray will be ordered at bedside and transmitted via PACS for reading.
4. STAT reading is obtained from the assigned Attending Radiologist. The phone # is 212 639-2799 which goes directly to the assigned doctor of the day. Any queries outside the assigned hours of 8 am – 6.00 p.m. are read by the CT Body Imaging Fellow or radiology night attending. They can be contacted at 212 639-8318 between 6pm and 3am. Between 3am and 8am, the radiology fellow on call needs to be paged through the Page Operator at Main Campus at extension x2000.
5. If small pneumothorax then patient should be observed and Chest X-ray repeated in 2-3 hours. If surgeon wishes to cancel surgery, patient may be discharged home if repeat Chest X-ray is unchanged and patient is asymptomatic and clinically stable. Patient may be observed overnight at JRSC if there is any concern about clinical symptoms or pre-existing pulmonary history.
6. If small pneumothorax, and patient is stable and surgeon wishes to proceed at JRSC, the on –call Thoracic Service will be called to evaluate patient at JRSC and insert chest tube (or pigtail catheter) preoperatively. Postoperative chest x-ray will be done in PACU and patient continued to be observed during the routine postoperative course. Patient may be considered for discharged the following day if chest tube can be removed and patient has met discharge criteria for surgical procedure. If additional observation time is needed, patient will be transferred to main hospital.
7. If patient has symptoms of shortness of breath at any time or if pneumothorax is large, then patient needs transfer to main hospital and Thoracic Surgery consult should be requested. In an emergency, a JRSC surgeon may insert a chest tube at bedside. Transfer to Memorial Hospital will follow JRSC policy and procedure 4501A – Emergency and Non-Emergent Transfer of Patients from JRSC.
https://one.mskcc.org/sites/pub/Ambulatory/jrsc/Policies/JRSC-4501A.pdf

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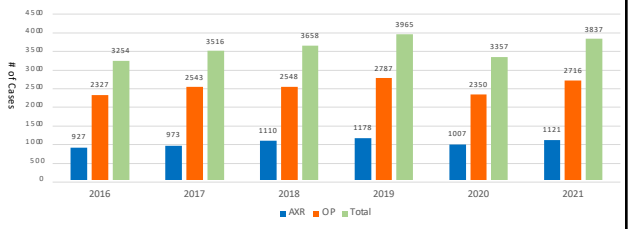
Breast Case Volume, JRSC 2016-2021



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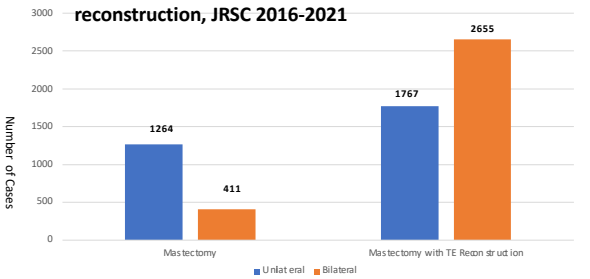
Mastectomy vs mastectomy with immediate implant-based reconstruction, JRSC 2016-2021



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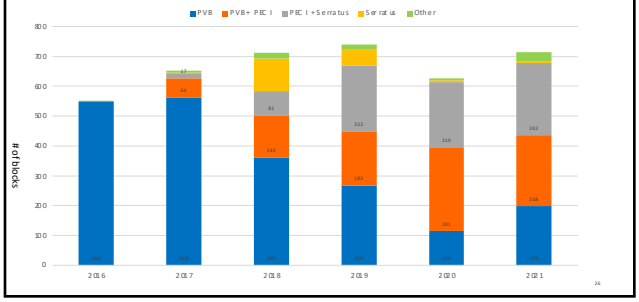
Block type by year, 2016-2021
N = 4,012 patients



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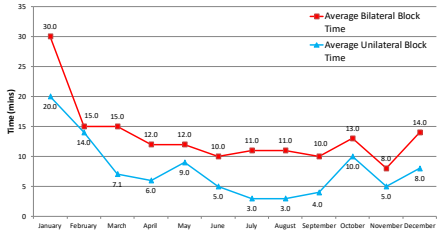
JRSC 2016
PVB Placement Times



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POSTOP OUTCOMES FOR BILATERAL MASTECTOMY WITH TE RECONSTRUCTION AT JRSC 2016-21: N = 2,655

Year of Date	ASA PS > 2?	Max Pain	Narcotic?	Hrs to First Narcotic	Postop MME	Cases
2016	34%	7 [6 - 8]	95.3%	1.1 [0.6 - 2.8]	24.0 [12.0 - 40.0]	n=401
2017	33%	7 [6 - 8]	90.9%	1.1 [0.6 - 3.0]	25.3 [12.5 - 40.0]	n=430
2018	33%	7 [6 - 8]	90.2%	1.0 [0.5 - 2.3]	22.5 [10.0 - 37.5]	n=498
2019	35%	7 [5 - 8]	87.7%	1.0 [0.5 - 2.5]	22.0 [7.5 - 37.5]	n=489
2020	40%	7 [6 - 8]	87.1%	1.0 [0.5 - 2.4]	20.0 [7.5 - 32.5]	n=412
2021	41%	7 [6 - 8]	86.8%	1.0 [0.5 - 2.3]	18.5 [7.5 - 30.0]	n=425

Year of Date	PONV?	Hrs to First PONV Med	PONV Score	Aprepitant?	Cases
2016	48%	3.2 [0.9 - 5.5]	3.0 [3.0 - 3.0]	51%	n=401
2017	35%	3.8 [1.9 - 5.6]	3.0 [3.0 - 3.0]	26%	n=430
2018	25%	4.2 [2.0 - 5.9]	3.0 [3.0 - 3.8]	27%	n=498
2019	29%	4.4 [2.7 - 7.3]	3.0 [3.0 - 4.0]	34%	n=489
2020	26%	3.9 [1.9 - 7.8]	3.0 [3.0 - 4.0]	40%	n=412
2021	25%	4.7 [2.8 - 11.4]	3.0 [3.0 - 4.0]	42%	n=425

Median PACU hrs
2016 - 19.2
2017 - 19.0
2018 - 19.1
2019 - 18.8
2020 - 19.4
2021 - 19.2

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Safety outcomes
2016-2021
N = 4,149

- **N pneumothorax = 2**
- **Incidence = 0.05%**
- **No other major block related adverse events**

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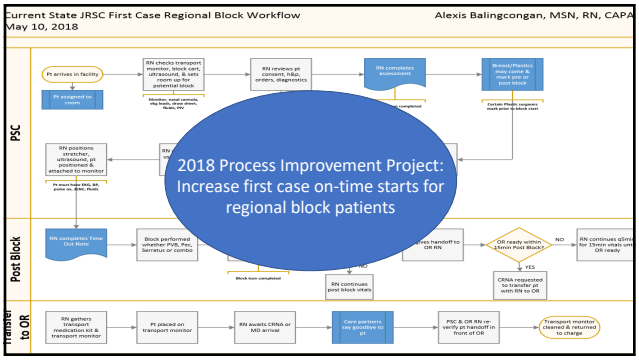

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Research study: Prospective randomized trial of regional blocks for mastectomies

BLOCK STUDY RECRUITMENT STATISTICS, 8/21/2019 – 5/12/2022

N screened	N consented evaluable	% consented	N ineligible	Reason ineligible
1196	1048	88%	149	clinician pref (habitus): 44 pt declined a block: 61 pt declined study: 32 pt block preference: 6 other: 2 missed: 4

Avg eligible per month	Avg consented per month	Enrollment % complete	Projected to complete by
36	32	70%	Summer/Fall 2023

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2022 JRSC Regional Anesthesia Team

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Tips for success

- Can't do it all by yourself
- Getting buy-in from nurses, surgeons, and patients is necessary; this takes time
- Standardize as much as you can in the workflow
- Always make sure you have a plan for safety
- Track outcomes, see how you can do better
- If you do research, consider including surgeons as investigators
- If you demonstrate **consistency**, **safety**, **effectiveness**, **efficiency**, and maintain an outlook of **continuous innovation** and improvement, you'll succeed!

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