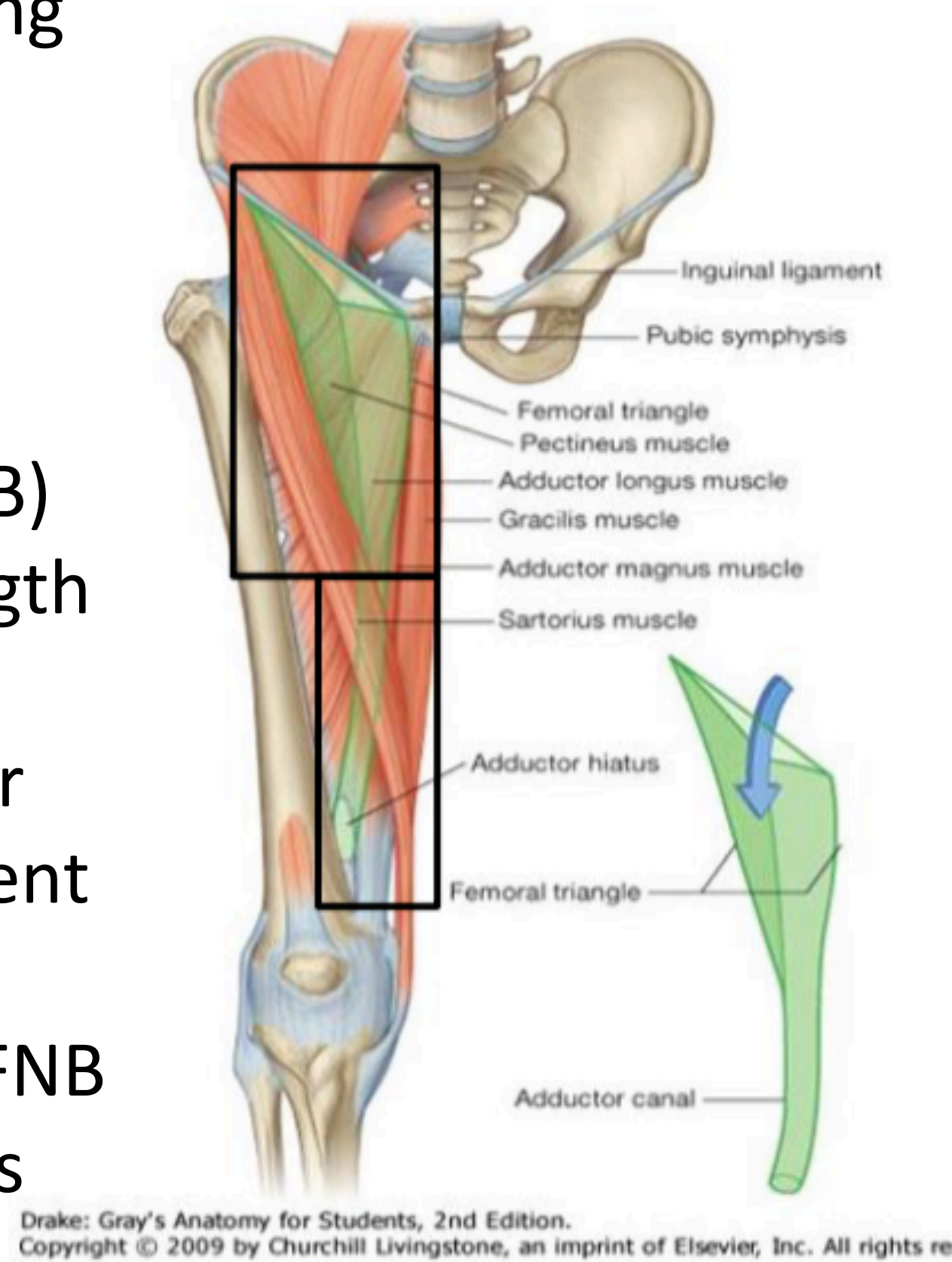


## BACKGROUND

- Anterior cruciate ligament reconstruction (ACLR) is often associated with considerable post-operative pain.<sup>1</sup>
- Femoral nerve blocks (FNB) are an effective method of post-operative analgesia for ACLR in pediatric patients.<sup>2</sup>
- FNB may result in quadriceps muscle weakness interfering with recovery, as well as putting motor branches of femoral nerve at risk for injury.<sup>3</sup>
- Adductor canal blocks (ACB) preserve quadriceps strength and provide non-inferior postoperative analgesia for adults undergoing outpatient ACLR.<sup>4</sup>
- Similar studies comparing FNB to ACB in pediatric patients are currently lacking.



## METHODS

**Study Design:** Retrospective, non-randomized, cohort study

**Population:** Pediatric patients (<21 y.o.) undergoing primary ACLR with hamstring autograft +/-meniscus repair, FNC or ACC + single shot sciatic nerve block (SSSB).

- Other Inclusion Criteria: single surgeon, single outpatient surgery center, ASAI/II patients
- Blocks performed by 7 pediatric anesthesiology attendings (+occasional fellows), under ultrasound guidance, using 0.5% ropivacaine (FNB/ACB, 0.3ml/kg, max 20mL)
- All patients receive IV acetaminophen, dexamethasone, and ondansetron intra-operatively

Study Cohort:	FNC/SSSB Cohort (7//2016-1/31/2017)	ACC/SSSB Cohort (5/11/2017-1/31/2018)
	45	34

**Primary Outcomes:** PACU max pain scores, PACU morphine utilization, rescue antiemetic usage, PACU length of stay (LOS)

**Secondary Outcomes:** pain scores POD#1-3, block complications, patient satisfaction

## RESULTS

Table 1. Patient Study Demographics

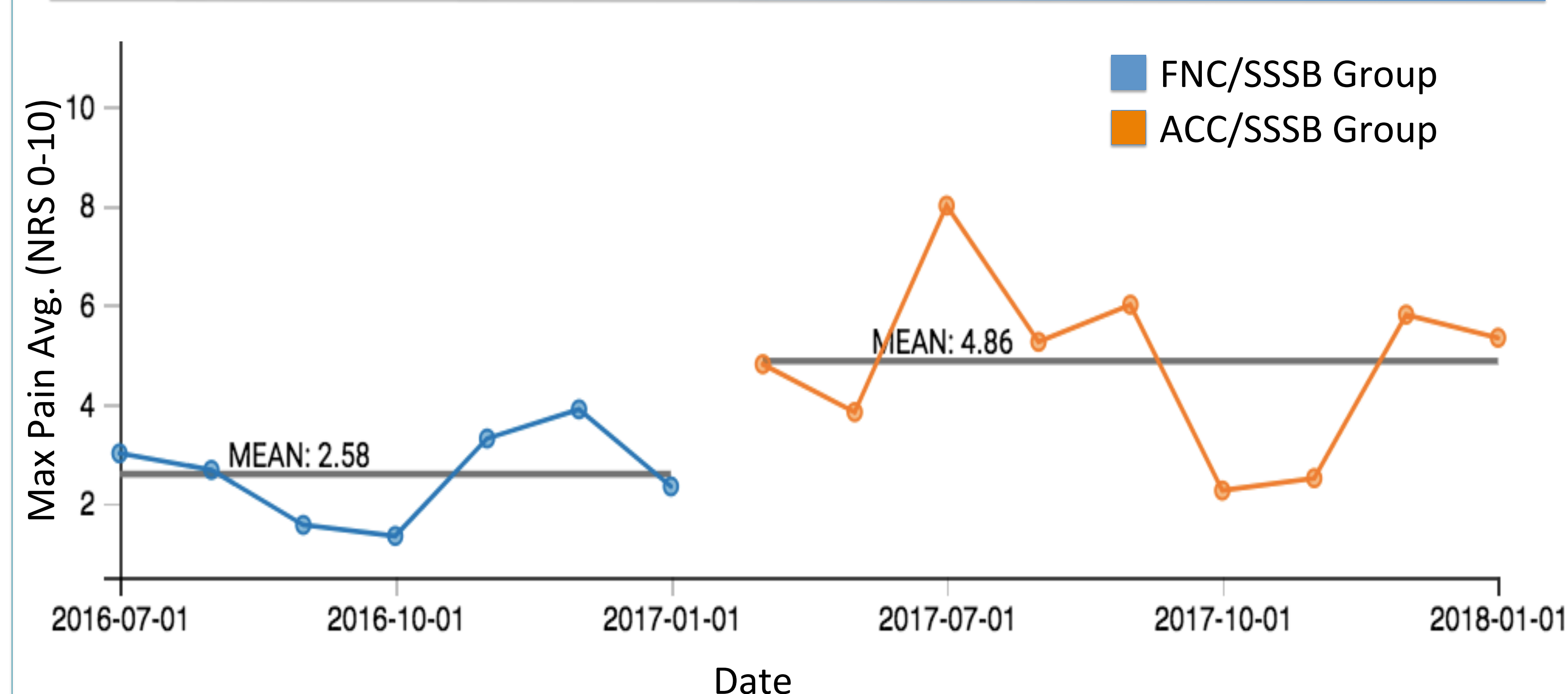
	FNC/SSSB Group (n=45)	ACC/SSSB Group (n=34)
Age (yrs)	15.0 ± 1.9	15.3 ± 1.6
Sex (M %)	57.8%	41.2%
Site of Surgery (Right %)	52.1%	56.1%
ASA Class (I,II %)	62.5%, 37.5%	58.5%, 41.5%

FNC- Femoral nerve catheter; SSSB- Single shot sciatic block; ACC- Adductor canal catheter; ASA- American Society of Anesthesiologists

Table 2. Perioperative Outcomes, FNC vs ACC

	FNC/SSSB Group (n=45)	ACC/SSSB Group (n=34)	p-value
Max Mean PACU Pain Scores (NRS 0-10)	2.58 ± 2.39 (1.86-3.30)	4.86 ± 2.59 (3.96-5.76)	p<0.0001
Rescue Morphine Utilization (yes %)	8.9%	35.3%	p<0.004
Rescue Antiemetic Utilization (yes %)	2.2%	2.4%	p<0.84
PACU Length of Stay (min)	112.55 ± 17.3 (107.35-117.75)	114.77 ± 20.86 (107.49-122.05)	p<0.39

Max Average PACU Pain Scores By Month



## RESULTS CONTINUED

- There was no significant difference in pain scores on POD#1-3 between groups.

	FNC/SSSB Group (n=36)	ACC/SSSB Group (n=28)	p-value
Pain Score POD#1	2.8 ± 1.9	2.6 ± 1.6	p=0.56
Pain Score POD#3	2.1 ± 2.2	1.3 ± 1.9	p=0.53

- Patient satisfaction was very high in both groups (FNC, 86.8% and ACC, 86.4%).
- Catheter complications: Leaking, bleeding, urinary retention, block failure, and residual numbness.
- Residual numbness occurred in 10.4% FNC, 2.3% ACC (p=0.13). No permanent neurological injuries were reported.

## CONCLUSIONS

- Our study shows higher max pain scores and PACU morphine utilization in patients with ACC/SSSB compared to FNC/SSSB after ACLR.
  - Is this clinically relevant when there are similar PACU LOS, POD#1-3 pain scores and patient satisfaction?
  - Do the additional risks of FNB outweigh any potential benefits?
- Trend towards higher incidence of residual numbness in FNC/SSSB cohort should be followed up with larger prospective studies.
- FNCs and ACCs are safe and effective methods of post operative pain management in pediatric patients undergoing outpatient ACLR.

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