Peripheral Nerve Blocks and Immediate Postoperative Recovery: A Single-Institution Survey of Perianesthesia Nurses' Preferences and Opinions

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Purpose: *To ascertain the preferences of perianesthesia nurses regarding peripheral nerve blocks (PNBs) and their impact on patient recovery after total joint replacement (TJR).*
Design: *Survey of perianesthesia nurses at a single medical center.*
Methods: *Fifty-nine perianesthesia nurses completed a 23-question survey on PNBs for TJR.*
Findings: *Most agreed PNBs improved patients' pain after knee, hip, and shoulder TJR (35 [92.1%], 35 [92.1%], and 34 [91.9%], respectively). Most felt lower extremity PNBs increased risk of falling (26 [70.3%]), whereas 7 of 35 (20.0%) felt patients fell more after spinal anesthesia than after general anesthesia. Respondents preferred a block to opioid-based analgesia if they were to have lower extremity TJR or total shoulder replacement (100% [30/30 and 33/33]).*
Conclusions: *The perianesthesia nurses surveyed felt PNBs improved pain control and patient recovery despite a perceived risk of falling for lower extremity TJR, and they preferred PNB when considering TJR surgery for themselves.*

Keywords: *perianesthesia nursing, postoperative analgesia, postoperative recovery, total joint replacement.*

PAIN IS THE NUMBER ONE medical reason for delayed discharge from the postanesthesia care unit (PACU) after major surgery.[1] Peripheral nerve block (PNB) can substantially improve pain control after total joint replacement (TJR) and has also been shown to reduce perioperative opioid medication use.[2] Although PNB can improve pain control after TJR surgery, there are some theoretical pitfalls, including potential muscle weakness that can negatively impact other recovery metrics.[3] This has led some providers to use a periarticular infiltration method for delivering local anesthetic to improve analgesia and reduce the risk of muscle weakness accompanying PNB. [4]

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Perianesthesia nurses are integral to the implementation of analgesic plans for effective and safe patient recovery. As there are differing partialities in the management of postoperative pain in patients among providers, we conducted a survey of our institution's perianesthesia nursing staff to seek their preferences on various pain control modalities based on their experience. We also asked the nurses which type of analgesia they would prefer if they were to undergo TJR.

The standardized practice for perioperative management of patients undergoing total knee arthroplasty (TKA) and total hip arthroplasty (THA) at our institution has evolved. Before 2012, patients undergoing TKA received a spinal anesthetic, with continuous femoral and sciatic (intermittent catheter bolus dosing) PNBs for postoperative analgesia unless contraindicated. The practice changed in 2012, when we began offering patients undergoing TKA spinal anesthetics combined with continuous adductor canal and sciatic (intermittent catheter bolus dosing) PNBs for postoperative analgesia. Patients who underwent THA received spinal anesthetics combined with a continuous lumbar plexus with or without a single-injection sciatic PNB for postoperative analgesia. Total shoulder arthroplasty patients received general anesthesia combined with continuous interscalene brachial plexus PNB for postoperative analgesia. The practice changed again in 2014, when patients undergoing TKA and THA began to receive spinal anesthetics, and a periarticular infiltration of local anesthetic was performed intraoperatively by the surgeon. Patients having total shoulder arthroplasty began to receive single-injection interscalene brachial plexus PNB with periarticular infiltration by the surgeon for postoperative analgesia. Our current practice, updated in 2015, is to offer most patients undergoing THA a modified continuous lumbar plexus block in addition to a spinal anesthetic. Some patients undergoing TKA are now being offered continuous adductor canal block in addition to an intraoperative spinal anesthetic and infiltration of local anesthetic near the posterior capsule of the knee for pain control.

Materials and Methods

Our study is similar in design to the one we published in 2017,[5] in which we surveyed physical therapists within our institution for their preferences regarding PNBs for TJRs. For our present study, we modified the survey for relevance to our perianesthesia nursing staff. After approval by our institutional review board, an anonymous, multiple-choice, Likert scale questionnaire (Appendix 1) was distributed to every perianesthesia nurse at our institution. Once completed, the questionnaires were collected and answers tabulated.

Statistical Analysis

The nonparametric ordinal type data set was analyzed by identifying associations between each question. Likert-scaled survey questions were explored by constructed exact binomial 95% confidence intervals, a validated method for analyzing these types of data.[6] All analyses were performed using SAS software, version 9.3 (SAS Institute Inc).

Results

At the time of the survey, there were 41 full-time, 11 part-time, and 7 pro re nata perianesthesia nurses at our institution. Of the 59 questionnaires distributed, 39 (66.1%) were returned completed over a 2-month period (75%, 39/52 of full-time and part-time nurses, 66% 39/59 of all employed perianesthesia nurses). Of the completed questionnaires, one respondent indicated that he or she never worked with patients who had undergone TJR, leaving 38 questionnaires included in the final analysis.

Most respondents agreed that PNBs somewhat to greatly improved a patient's pain after knee, hip, and shoulder TJR (35 [92.1%], 35 [92.1%], and 34 [91.9%], respectively). Although respondents answered that lower extremity PNBs somewhat to strongly increased the risk of patients falling (26 [70.3%]), only 7 of 35 (20%) felt patients who had received spinal anesthesia opposed to general anesthesia fell more often. When the nurses were asked to consider if they were to undergo a lower extremity or shoulder TJR, 100% (30/30 and 33/33, respectively) of the respondents indicated they would prefer to have either a single-injection or continuous PNB over periarticular injection or opioid-based analgesia (Table 1). A visual representation of the survey

Table 1. Proportion of Perianesthesia Nurses and Physical Therapists* Who Preferred Peripheral Nerve Block Over Other Methods †

	Perianesthesia Nurses		Physical Therapists	
Procedure	**No. (%)**	**95% CI**	**No. (%)**	**95% CI**
When treating patients				
Total knee arthroplasty	27/30 (90.0)	73.5-97.9	1/18 (5.6)	0.1-27.3
Total hip arthroplasty	30/32 (93.8)	79.2-99.2	4/18 (22.2)	6.4-47.6
Total shoulder arthroplasty	31/32 (96.9)	83.8-99.9	NA	NA
If having surgery				
Total knee arthroplasty	31/33 (93.9)	79.8-99.3	0/19 (0.0)	0.0-17.7
Total hip arthroplasty	33/33 (100.0)	89.4-100.0	3/18 (16.7)	3.6-41.4
Total shoulder arthroplasty	33/33 (100.0)	89.4-100.0	10/19 (52.6)	28.9-75.6

CI, confidence interval; NA, not available.
*Previously reported data.[5]
†Other methods included periarticular infiltration and opioid-based analgesia.

responses is provided in Figure 1, and a summary of all responses is provided in Appendix 2.

Discussion

The opinions and preferences of perianesthesia nurses with regard to the use of regional anesthesia after TJR are important because they are the first to interact with patients after surgery. We have speculated in a previous publication that there is a potential for bias from physical therapists with respect to the benefit or harm perceived from regional anesthesia for patients undergoing TJR.[5] We have shown that they believe PNBs have the potential to impede physical rehabilitation as a result of motor weakness, despite studies showing the benefits of PNB-associated range of motion after TJR.[2,7-11] The bias of perianesthesia nurses also has the potential to impact the immediate recovery of patients that had TJR. Although the physical therapist's primary goal is to assess and improve mobility, the perianesthesia nurse's goal is to ensure convalescence, so that discharge from the postanesthesia care unit (PACU) is both safe and efficient.

In our previous study, we showed that physical therapists at our institution felt that PNBs impeded patient recovery and increased the risk of falls, independent of their beneficial effects on analgesia.[5] When considering surgery for themselves, most physical therapists indicated they would not want a PNB.[5] This is in sharp contrast to our current survey of the perianesthesia nurses at our institution, wherein respondents believe PNBs somewhat to strongly facilitate a patient's recovery after TJR (93.9%), despite a perceived increase in fall risk (71.9%), whereas making patient recovery easier for them as nurses (87.9%).

The impact of type of anesthetic on postoperative fall risk is controversial. A publication by Memtsoudis et al[8] retrospectively analyzed data from more than 191,000 patients who underwent TKA. Patients who had falls were older with more comorbidities and were associated with more major complications. Use of neuraxial anesthesia (for example, spinal anesthesia) had a lower adjusted odds ratio of fall compared with those who received general anesthesia alone. The risk of fall associated with PNB is controversial. Some reports suggest an increased risk of postoperative falls in patients with PNB for lower extremity surgery.[12,13] A systematic review of available literature looked at 258 reports and concluded that PNBs do increase the risk (7.8 times) for falls and difficulty in ambulation in patients undergoing THA and TKA.[14] Others seem to suggest that PNB may not be associated with falls and that the risk of fall is more related to other factors such as age, comorbid status, and ambulating alone without assistance.[8] A retrospective cohort looking at 171 fall patients after THA or TKA suggested that if patients were not properly educated on fall risk were more likely to experience a fall after surgery irrespective of the presence of a PNB.[15] In a review of our own hospital's fall data per quarter from 2018, our orthopaedic ward, which has the highest density of patients who have received spinal

	Q10	Q11	Q12	Q13	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23
R1	5	5		3	4	4	4	5	5	3	4	5	3
R2	5	5	5		5	5			5		4	4	3
R3	4	4	4	3	4	4	3	3	4	3	3	3	3
R4	5	5	5	2	4	5	5	5	5	3	3	4	3
R5	5	5	5	2	4	4	5	5	5	3	4	4	3
R6	5	5	5	2	4	4	4	4	4	2	3	4	3
R7	4	3	5	2	2	4	4	4	4	3	3	3	4
R8	4	4	5	3	4	4	5	5	5	3	4	5	5
R9	5	5	5	2	4	5	5	5	5	3	5	5	5
R10	4	4	5	1	5	4	5	5	5	3	5	5	3
R11	5	5	5	3	4	4		5	5	3	5	5	5
R12	4	4	4	3	4	4	4	4	5	4	4	4	4
R13	1	1	1	2	5	5	4	4	4	2	4	4	4
R14	4	4	4	2	4	5	4	4	5	3	4	4	4
R15	5	5	5	2	4	5	5	5	5	3	5	4	4
R16	5	5	5	2	4	5	5	5	5	2	4	5	4
R17	4	4	4	2	4	4	4	5	5	3	4	4	3
R18	5	5	5	2	5	5	4		5	3	4	4	5
R19	1	1	1	3	5	5	4	4	5	3	4	5	5
R20	2	3	3	2	3	4	4	4	4	3	3	3	3
R21	4	4	4	2	4	4	3	4	4	2	5	5	3
R22													
R23	4	4	5	1	4	5	5	4	5	2	5	5	3
R24	4	5	5	2	5	5	4	5	5	3	4	5	4
R25	4	4	4	2	3	3	5	5	4	2	2	4	3
R26	5	5	5	2	5	5	5	5	5	3	3	5	5
R27	5	4	5	3	5	5	4	5	5	3	4	5	3
R28	5	5	5	2	5	5	4	4	5	3	5	5	4
R29	5	5	5	2	4	4	4	4	5	3	4	5	3
R30	5	5	5	2	4	4	5	5	5	3	5	5	5
R31	5	5	5	3	5	5	5	5	5		4	5	5
R32	5	5	5	3	5	5	5	5	5		4	4	5
R33	5	5	5	2	4	4	5	5	4	3	5	5	5
R34	4	4	5	2	5	5	4	4	5	3	4	4	4
R35	4	5	5	3	5	5	5	5	5	3	4	4	4
R36	5	5	5	2	5	5	4	4	5	4	5	5	5
R37	4	4	5	2	4	5	5	5	5	2	5	5	5
R38	5	5	5	2	4	4			5	3	4	5	5
R39	5	5	5	3	5	5	5	5	5	3	4	5	5

Legend	Strong positive association with PNB	Modestly positive association with PNB	Neutral opinion	Modestly negative association with PNB	Strong negative association with PNB	Unanswered or unscaled answer

Figure 1. Information graphic of Likert Scale Questions. Respondent 22 indicated they never treated patients after total joint surgery and did not complete the survey. PNB, peripheral nerve block; Q, question; R, respondent. This image is available in color online at www.jopan.org.

anesthesia and lower extremity PNBs, had a fall rate of less than or equal to the mean fall rate for the entire Mayo Clinic, as well as our specific Mayo Clinic hospital in Florida. Of note, our orthopaedic ward fall rate was also lower than the National Database of Nursing Quality Indicators' rate over the same time period (Figure 2).

Our survey results are in line with our current understanding of the use of PNBs for TJR surgery, with evidence that they provide excellent analgesia and reduce recovery room length of stay, whereas not increasing the risk of falls.[2,7-11,16] Corey et al[16] were able to demonstrate that patients who received regional anesthesia had an associated shorter length of stay in the recovery room compared with those who received general anesthesia. They also showed that patients who received combined regional and general anesthesia had a faster time to discharge from the PACU when compared with patients who received general anesthesia only.[16]

Local infiltration analgesia has recently been shown to be equivalent to PNB for postoperative pain control in a recent meta-analysis. Albrecht et al[17] concluded that there was no difference in intravenous morphine consumption in patients who received local infiltration analgesia compared with femoral nerve block for TKA. Although this meta-analysis included both continuous femoral infusions and single-injection PNBs, we were unable to identify within the article where these two groups' data were subdivided. This is important, as their primary outcome was morphine consumption on postoperative day 1, a point at which most, if not all, of the benefit of a single-injection PNB would have dissipated.[17] Interestingly, in a meta-analysis from 2017, Terkawi et al[18] determined that blocking multiple peripheral nerves (eg, femoral and sciatic) were superior to any single nerve block, periarticular infiltration, or epidural analgesia. It is evident that at this point in time, there is no one established ideal analgesic regimen for TJR.

As alluded to previously, we suspect that much of the data collected in our study, similar to our previous study on physical therapy,[5] is a result of the caretaker's goal. The perianesthesia nurse desires to have a comfortable patient who is able to be discharged from the PACU with as little intervention as possible. They are not responsible for range of motion or physical rehabilitation during the PACU stay. From a perianesthesia nursing perspective, PNBs seem to best achieve that goal when compared with other modalities. It is interesting that these data are in stark contrast to those we published previously on this subject.[5] In reality, we suspect that the ideal analgesic regimen is the one that is best from the patient's perspective, as their bias is simply fastest recovery with the least amount of pain. Perhaps that anesthetic technique lies somewhere in the middle of the spectrum between PNBs and local infiltration analgesia.

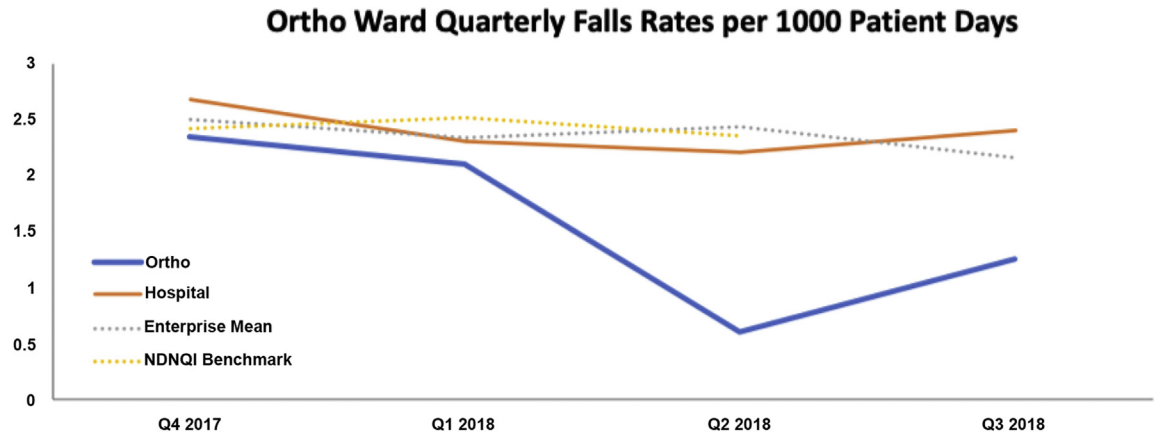

Figure 2. Comparison of fall rates for Ortho Ward, Hospital, Enterprise, and NDNQI Metric from 2017 to 2018. Enterprise indicates all Mayo Clinic hospitals; Hospital, Mayo Clinic hospital in Jacksonville, FL; NDNQI, National Database of Nursing Quality Indicators; and Ortho, orthopaedic ward. Q, quarter. This image is available in color online at www.jopan.org.

Study Limitations

Our study was performed at a single institution and is based on anonymous survey data. The survey instrument has not been validated but we were unable to find a validated instrument on this topic. Likert scales may have inherent limitations compared with phrase completion scales, where all points along a continuum of answers are available.[19] Survey responses reflect opinion only and are not meant to imply causal relationships between PNB and immediate postoperative recovery. The opinions of the perianesthesia nurses at our institution may vary from those in other practices.

Conclusions

Immediate postoperative recovery is an important factor for patients after TJR surgery. We have found that perianesthesia nurses at our institution believe that PNBs facilitate patient recovery despite a perceived increased risk of falling and provide a preferred method of analgesia over periarticular infiltration and opiate-based analgesics.

Supplementary Data

Supplementary data related to this article can be found at http://doi.org/10.1016/j.jopan.2019.02.006.

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Appendix 1
Survey Questionnaire

A survey of perianesthesia nurses regarding the impact of peripheral nerve blocks on pain control and recovery in patients undergoing joint replacement.

1. How long have you practiced as a perianesthesia nurse in the postanesthesia care unit (PACU)?

< 1 year	**1-5 years**	**5-10 years**	**10-15 years**	**15-20 years**	**>20 years**
☐	☐	☐	☐	☐	☐

2. How often do you care for total joint replacement surgical patients?

Never	**Rarely**	**Sometimes**	**Frequently**	**Every Day**
☐	☐	☐	☐	☐

3. When I am caring for patients following **TOTAL KNEE REPLACEMENT** surgery, overall I would prefer that they receive:

Single-Injection Peripheral Nerve Block	☐
Continuous Peripheral Nerve Block Catheter	☐
Periarticular Infiltration	☐
Opioid Based Analgesia	☐
Comments:	

4. When I am caring for patients following **TOTAL HIP REPLACEMENT** surgery, overall I would prefer they receive:

Single-Injection Peripheral Nerve Block	☐
Continuous Peripheral Nerve Block Catheter	☐
Periarticular Infiltration	☐
Opioid Based Analgesia	☐
Comments:	

5. When I am caring for patients following **TOTAL SHOULDER REPLACEMENT** surgery, overall I would prefer they receive:

Single-Injection Peripheral Nerve Block	☐
Continuous Peripheral Nerve Block Catheter	☐
Periarticular Infiltration	☐
Opioid Based Analgesia	☐
Comments:	

6. If I had a **LOWER EXTREMITY JOINT REPLACEMENT** surgery I would prefer:

Single-Injection Peripheral Nerve Block	☐
Continuous Peripheral Nerve Block Catheter	☐
Periarticular Infiltration	☐
Opioid Based Analgesia	☐
Comments:	

7. If I had a **KNEE REPLACEMENT** surgery I would prefer:

Single-Injection Peripheral Nerve Block	☐
Continuous Peripheral Nerve Block Catheter	☐
Periarticular Infiltration	☐
Opioid Based Analgesia	☐
Comments:	

8. If I had a **HIP REPLACEMENT** surgery I would prefer:

Single-Injection Peripheral Nerve Block	☐
Continuous Peripheral Nerve Block Catheter	☐
Periarticular Infiltration	☐
Opioid Based Analgesia	☐
Comments:	

9. If I had a **SHOULDER REPLACEMENT** surgery I would prefer:

Single-Injection Peripheral Nerve Block	☐
Continuous Peripheral Nerve Block Catheter	☐
Periarticular Infiltration	☐
Opioid Based Analgesia	☐
Comments:	

10. In my opinion, for **KNEE REPLACEMENT** surgery, **PERIPHERAL NERVE BLOCK** with local anesthetic is _____ to an **OPIOID BASE ANALGESIA** for Postoperative **PAIN CONTROL**.

Greatly Inferior	Somewhat Inferior	Equivalent	Somewhat Superior	Greatly Superior
☐	☐	☐	☐	☐

11. In my opinion, for **HIP REPLACEMENT** surgery, **PERIPHERAL NERVE BLOCK** with local anesthetic is _____ to an **OPIOID BASED ANALGESIA** for Postoperative **PAIN CONTROL**.

Greatly Inferior	Somewhat Inferior	Equivalent	Somewhat Superior	Greatly Superior
☐	☐	☐	☐	☐

12. In my opinion, for **SHOULDER REPLACEMENT** surgery, **PERIPHERAL NERVE BLOCK** with local anesthetic is _____ compared to an **OPIOID BASED ANALGESIA** for Postoperative **PAIN CONTROL**.

Greatly Inferior	Somewhat Inferior	Equivalent	Somewhat Superior	Greatly Superior	I Do Not Have An Opinion
☐	☐	☐	☐	☐	☐

13. In my opinion, **LOWER EXTREMITY NERVE BLOCKS** _____ the risk of patients falling.

Strongly Increase	Somewhat Increase	Neither Increase or Decrease	Somewhat Decrease	Strongly Decrease
☐	☐	☐	☐	☐

14. If you answered that **LOWER EXTREMITY NERVE BLOCKS** somewhat or strongly increase the risk of falls, can you please write in why:_____

15. In my opinion, **PERIPHERAL NERVE BLOCKS** _____ a patient's recovery after **LOWER EXTREMITY** (knee and hip) joint replacement surgery.

Strongly Impede	Somewhat Impede	Neither Impede or Facilitate	Somewhat Facilitate	Strongly Facilitate
☐	☐	☐	☐	☐

16. In my opinion, **PERIPHERAL NERVE BLOCKS** _____ a patient's recovery after **TOTAL SHOULDER** joint replacement surgery.

Strongly Impede	Somewhat Impede	Neither Impede or Facilitate	Somewhat Facilitate	Strongly Facilitate
☐	☐	☐	☐	☐

17. In my opinion, **PERIPHERAL NERVE BLOCKS** make patient recovery _____ *for me as a Perianesthesia Nurse*.

Very Difficult	Somewhat Difficult	Neither Difficult or Easy	Somewhat Easy	Very Easy	It Depends on the Surgery Type
☐	☐	☐	☐	☐	☐

18. In my opinion, **PERIPHERAL NERVE BLOCKS** make patient recovery _____ *for the patient*.

Very Difficult	Somewhat Difficult	Neither Difficult or Easy	Somewhat Easy	Very Easy	It Depends on the Surgery Type
☐	☐	☐	☐	☐	☐

19. In my opinion, **PERIPHERAL NERVE BLOCKS** _____ patient's ***pain*** after joint replacement surgery.

Greatly Worsen	Somewhat Worsen	Neither Worsen or Improve	Somewhat Improve	Greatly Improve
☐	☐	☐	☐	☐

20. In my opinion, patients having had ***spinal anesthesia*** fall _____ than patients having had ***general anesthesia***.

Much Less Often	Somewhat Less Often	Neither More or Less Often	Somewhat More Often	Much More Often
☐	☐	☐	☐	☐

21. I feel that **PERIPHERAL NERVE BLOCKS** _____ a patient's length of stay in the PACU.

Strongly Increase	Somewhat Increase	Neither Increase or Decrease	Somewhat Decrease	Strongly Decrease
☐	☐	☐	☐	☐

22. I feel that **PERIPHERAL NERVE BLOCKS** _____ a patient's risk of postoperative nausea and vomiting.

Strongly Increase	Somewhat Increase	Neither Increase or Decrease	Somewhat Decrease	Strongly Decrease
☐	☐	☐	☐	☐

23. I feel that **PERIPHERAL NERVE BLOCKS** _____ a patient's risk of outpatient overnight observation.

Strongly Increase	Somewhat Increase	Neither Increase or Decrease	Somewhat Decrease	Strongly Decrease
☐	☐	☐	☐	☐

Appendix 2
Summary of Questionnaire Responses

Regarding General Questions:

[Q1] Counts/frequency: < 1 year (5, 14.7%), 1-5 years (9, 26.5%), 5-10 years (5, 14.7%), 10-15 years (3, 8.8%), 15-20 years (7, 20.6%), >20 years (5, 14.7%)

[Q2] Counts/frequency: Never (2, 5.9%), Rarely (4, 11.8%), Sometimes (6, 17.6%), Frequently (17, 50.0%), Every Day (5, 14.7%)

[Q3] Counts/frequency: Single-Injection Peripheral Nerve Block (11, 36.7%), Continuous Peripheral Nerve Block Catheter (16, 53.3%), Periarticular Infiltration (3, 10.0%), Opioid Based Analgesia (0, 0.0%)

[Q4] Counts/frequency: Single-Injection Peripheral Nerve Block (6, 18.8%), Continuous Peripheral Nerve Block Catheter (24, 75.0%), Periarticular Infiltration (2, 6.3%), Opioid Based Analgesia (0, 0.0%)

[Q5] Counts/frequency: Single-Injection Peripheral Nerve Block (7, 21.9%), Continuous Peripheral Nerve Block Catheter (24, 75.0%), Periarticular Infiltration (1, 3.1%), Opioid Based Analgesia (0, 0.0%)

[Q6] Counts/frequency: Single-Injection Peripheral Nerve Block (7, 23.3%), Continuous Peripheral Nerve Block Catheter (23, 76.7%), Periarticular Infiltration (0, 0.0%), Opioid Based Analgesia (0, 0.0%)

[Q7] Counts/frequency: Single-Injection Peripheral Nerve Block (8, 24.2%), Continuous Peripheral Nerve Block Catheter (23, 69.7%), Periarticular Infiltration (2, 6.1%), Opioid Based Analgesia (0, 0.0%)

[Q8] Counts/frequency: Single-Injection Peripheral Nerve Block (5, 15.2%), Continuous Peripheral Nerve Block Catheter (28, 84.8%), Periarticular Infiltration (0, 0.0%), Opioid Based Analgesia (0, 0.0%)

[Q9] Counts/frequency: Single-Injection Peripheral Nerve Block (7, 21.2%), Continuous Peripheral Nerve Block Catheter (26, 78.8%), Periarticular Infiltration (0, 0.0%), Opioid Based Analgesia (0, 0.0%)

[Q10] Counts/frequency: Greatly Inferior (2, 6.1%), Somewhat Inferior (1, 3.0%), Equivalent (0, 0.0%), Somewhat Superior (12, 36.4%), Greatly Superior (18, 54.5%)

[Q11] Counts/frequency: Greatly Inferior (2, 6.1%), Somewhat Inferior (0, 0.0%), Equivalent (2, 6.1%), Somewhat Superior (11, 33.3%), Greatly Superior (18, 54.5%)

[Q12] Counts/frequency: Greatly Inferior (2, 6.1%), Somewhat Inferior (0, 0.0%), Equivalent (1, 3.0%), Somewhat Superior (6, 18.2%), Greatly Superior (23, 69.7%), I do not have an opinion (1, 3.0%)

[Q13] Counts/frequency: Strongly Increase (2, 6.3%), Somewhat Increase (21, 65.6%), Neither Increase or Decrease (9, 28.1%), Somewhat Decrease (0, 0.0%), Strongly Decrease (0, 0.0%)

[Q15] Counts/frequency: Strongly Impede (0, 0.0%), Somewhat Impede (1, 3.0%), Neither Impede or Facilitate (2, 6.1%), Somewhat Facilitate (18, 54.5%), Strongly Facilitate (12, 36.4%)

[Q16] Counts/frequency: Strongly Impede (0, 0.0%), Somewhat Impede (0, 0.0%), Neither Impede or Facilitate (1, 3.0%), Somewhat Facilitate (15, 45.5%), Strongly Facilitate (17, 51.5%)

[Q17] Counts/frequency: Very Difficult (0, 0.0%), Somewhat Difficult (0, 0.0%), Neither Difficult or Easy (2, 6.1%), Somewhat Easy (15, 45.5%), Very Easy (14, 42.4%), It Depends on the Surgery Type (2, 6.1%)

[Q18] Counts/frequency: Very Difficult (0, 0.0%), Somewhat Difficult (0, 0.0%), Neither Difficult or Easy (1, 3.0%), Somewhat Easy (12, 36.4%), Very Easy (18, 54.5%), It Depends on the Surgery Type (2, 6.1%)

[Q19] Counts/frequency: Greatly Worsen (0, 0.0%), Somewhat Worsen (0, 0.0%), Neither Worsen or Improve (0, 0.0%), Somewhat Improve (8, 24.2%), Greatly Improve (25, 75.8%)

[Q20] Counts/frequency: Much Less Often (0, 0.0%), Somewhat Less Often (1, 3.3%), Neither More or Less Often (23, 76.7%), Somewhat More Often (6, 20.0%), Much More Often (0, 0.0%)

[Q21] Counts/frequency: Strongly Increase (0, 0.0%), Somewhat Increase (1, 3.0%), Neither Increase or Decrease (6, 18.2%), Somewhat Decrease (17, 51.5%), Strongly Decrease (9, 27.3%)
[Q22] Counts/frequency: Strongly Increase (0, 0.0%), Somewhat Increase (0, 0.0%), Neither Increase or Decrease (3, 9.1%), Somewhat Decrease (13, 39.4%), Strongly Decrease (17, 51.5%)
[Q23] Counts/frequency: Strongly Increase (0, 0.0%), Somewhat Increase (0, 0.0%), Neither Increase or Decrease (14, 42.4%), Somewhat Decrease (9, 27.3%), Strongly Decrease (10, 30.3%)