

Jeetinder Kaur Makkar
MD, DNB

DATE CURRICULUM VITAE IS PREPARED: 27/11/2024

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BIOGRAPHICAL INFORMATION

CURRENT POSITION Professor

Primary Office: Department of Anaesthesia and Intensive Care
Post Graduate Institute of Medical Education and
Research, Chandigarh, India

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EDUCATION

DEGREE

1/08/ 1993 – 31/12/1998 MBBS
Government Medical College, Amritsar, India

POSTGRADUATE & SPECIALITY TRAINING

10/3/2016- 9/3/2017 **Fellow, Chronic Interventional Pain, University of
Manitoba, Winnipeg, Canada**

1/7/ 2003- 31/10/ 2006 Senior Resident
Post Graduate Institute of Medical Education & Research,
Chandigarh, India

1/7/2000 – 30/6/2003 MD (Anaesthesiology)
Post Graduate Institute of Medical Education & Research,
Chandigarh, India

QUALIFICATIONS & LICENSURES

1999 : MBBS

2003 : Doctorate of Medicine (Anesthesia)

2004 : Diplomate, Anesthesia, National Board of Examinations, India (DNB)

2004 : *USMLE Step I, December 14*

2005 : *USMLE Step II CK, October 22*

2006 : *February 22, USMLE CS, ECFMG certification 0-667-4311*

2017 : **Fellowship, chronic pain, University of Manitoba, Winnipeg, Canada**

PROFESSIONAL EXPERIENCE

1/7/2003- 31/10/2006 : **Senior Resident**, Post Graduate Institute of Medical
Education & Research, Chandigarh India

1/11/ 2006- 8/1/ 2008 : **Junior Consultant**, Cardiac Anaesthesia, Max Devki Devi
Heart and Vascular Institute, New Delhi, India.

11/1/ 2008- 30/1/ 2011 : **Assistant Professor**, Post Graduate Institute of Medical
Education & Research, Chandigarh, India.

1/7/2011- 30/6/ 2014 : **Associate Professor**, Post Graduate Institute of Medical

Education & Research, Chandigarh, India.

1/7/2014 -31/7/2018 : **Additional Professor**, Post Graduate Institute of Medical Education & Research, Chandigarh, India.

1/7/2018- till date : **Professor**, Post Graduate Institute of Medical Education & Research, Chandigarh, India.

CURRENT RESPONSIBILITIES

CLINICAL:

Professor, Anaesthesia and Intensive Care, Post Graduate Institute of Medical Education and Research, Chandigarh, India

ACADEMIC:

- Council member, Indian Society for Study of Pain
- Founder member, Society of Trauma Anaesthesia and Acute Care
- Organizer of Continuous Medical Education programs and conferences in the field of Chronic pain, Regional Anesthesia, Trauma Anaesthesia and Acute Care
- **Organized 1st Annual conference of Society of Trauma Anesthesia and Critical Care** at PGIMER, 2nd to 5th November 2023 Chandigarh
- Guide for the conduct of thesis research of MD Anaesthesia residents.

ADMINISTRATIVE:

- Member drafting specifications and purchase of equipment committee for the Department of Anaesthesia and Intensive Care, PGIMER, Chandigarh, India
- In charge Emergency OT Complex PGIMER Chandigarh

MEMBERSHIP OF SOCIETIES

1. Life member of the Indian Society of Anaesthesiologists
2. Life member of the Indian Society for the Study of Pain
3. Life member of the Research Society of Anaesthesiology & Clinical Pharmacology
4. Life member Indian Association of Pediatric Anaesthesiologists

5. Life member Indian Society of Critical Care Medicine
6. Founder member, Society for Trauma Anaesthesia and Critical Care
7. Associate member International Association of the Study of Pain
8. Member, Spine Intervention Society, USA

NATIONAL OFFICE BEARER

1. General Council Member, Indian Society for the Study of Pain
2. Joint secretary, Society of Trauma Anaesthesia and Acute Care
3. Treasurer, Chandigarh Branch of Indian Society of Anesthesiologists
4. Founder member, Indian Society for the Study of Pain Chandigarh City Branch

AWARDS

Research

- A research paper titled '**Pre-emptive multimodal analgesic regimen reduces post-operative epidural demand boluses in traumatic shaft of femur fracture: A randomised controlled trial.**' was awarded **2nd prize at the 12th International Conference on Orthopaedics, Osteoporosis & Trauma, held at London UK 2019.**
- A research paper titled "**Comparison of efficacy of duloxetine and pregabalin for neuropathic pain in patients with chronic low back pain, a randomized controlled trial**" awarded **MT BHATIA PAIN PHYSICIAN AWARD** at the 71st annual national conference of the **Indian Society of Anaesthesiologists**, at AIIMS Patna 2024.
- **Best publication award** for the research paper "**Role of supplemental regional blocks on postoperative neurocognitive dysfunction after major non-cardiac surgeries: a systematic review and meta-analysis of randomized controlled trials**" published in **Regional Anesthesia & Pain Medicine** at GARC 2023, Coimbatore, India.
- **2nd Best Publication award** for the research paper titled "**Prophylactic dexamethasone for rebound pain after peripheral nerve block in adult surgical patients: systematic review, meta-analysis, and trial sequential analysis of**

randomised controlled trials” in **British Journal of Anaesthesia** at GARC 2024, Coimbatore, India.

- **Best poster:** Research titled “**Comparison of two different doses of spinal anesthetics in severely preeclamptic women undergoing elective cesarean delivery**” awarded best poster at the **4th National Conference of Association of Obstetric Anesthesiologists at Hyderabad 2011.**
- **2nd Best Oral Paper:** Research titled “**Comparison of Analgesic Efficacy of Paracetamol and Tramadol for Pain Relief in Early Labor**” judged 2nd Best Oral Paper at the **6th National Conference of Association of Obstetric Anesthesiologists at Mangalore, 2013.**
- **Best poster:** Research titled “**Incidence of Chronic Pain in Below Knee Amputees Following Perioperative Sciatic Nerve Block: A Randomized Controlled Trial**” was awarded first prize at the **8th International Conference of Pain Management (ICPM) at Chandigarh 2019.**

Financial Awards

- Awarded financial aid by IASP to present a research paper “**Effect of Preprocedural Anxiety on Efficacy of Epidural Steroid Injections in Patients with Radicular Lumbosacral Pain: An Observational Study.**” at the **World Congress on Pain, Toronto, Canada 2022.**
- Awarded financial aid by IASP to present a research paper “**Incidence of Chronic Pain in Below Knee Amputees Following Perioperative Sciatic Nerve Block: A Randomized Controlled Trial** at the **World Congress on Pain, Boston, 2018.**
- Awarded financial aid by IASP to present a research paper “**Comparison of analgesic efficacy of paracetamol and tramadol for pain relief in active labor**” at the **World Congress on Pain, Buenos Aires, Argentina, 2014.**
- Awarded financial aid by IASP to present a research paper “**Selectivity of Contrast Flow During Selective Nerve Root**” at the **World Congress on Pain, Milan, Italy, 2012.**

- Awarded financial aid by IASP to present a research paper titled “**Median effective dose of spinal bupivacaine alone or with fentanyl for brachytherapy of Carcinoma cervix**” at **World Congress on Pain, Montreal, Canada, 2010.**

LIST OF PUBLICATIONS- H Index 21, i10 Index 47

1. Singh NP, **Makkar JK**, Dhawan I, Singh N, Singh PM, Siddiqui N. Relative Perioperative Analgesic Efficacy of Superficial Versus Deep Approach of Serratus Anterior Plane Block for Anterior Chest Wall Surgery: A Systematic Review and Meta-analysis of Randomized Controlled Trials. *Clin J Pain.* 2024 Dec 1;40(12):726-733. **[Co-principal investigator]**
2. Singh NP, **Makkar JK**, Khurana BJK, Karamchandani K, Singh M, Singh PM. Effect of prophylactic corticosteroids on postoperative neurocognitive dysfunction. **Indian J Anaesth.** 2024 Sep;68(9):842. **[Co-principal investigator]**
3. Singh NP, **Makkar JK**, Goel N, Karamchandani K, Singh M, Singh PM. Effect of prophylactic corticosteroids on postoperative neurocognitive dysfunction in the adult population: An updated systematic review, meta-analysis, and trial sequential analysis of randomised controlled trials. **Indian J Anaesth.** 2024 Jun;68(6):517-526. **[Co-principal investigator]**
4. Gupta SK, Ghai B, **Makkar JK**, Dhiman D, Chouhan DK. Effectiveness of ultrasound-guided pulsed radiofrequency ablation of suprascapular nerve versus local anaesthetics with steroids in patients with chronic shoulder pain: A randomised controlled trial. **Indian J Anaesth.** 2024 68: 731-734. **Co-investigator]**
5. **Makkar JK**, Warriar G, Ghai B, Chhabra M, Sarkar PK, Goni VG, Kaur Khurana BJ. Effect of radiofrequency ablation of genicular nerves on the isokinetic muscle strength of knee joint in patients with osteoarthritis knee: A randomized double-blind sham controlled clinical trial. **Pain Med.** 2024 Aug **[Principal investigator]**
6. Singh NP, **Makkar JK**, Chawla JK, Sondekoppam RV, Singh PM. Prophylactic dexamethasone for rebound pain after peripheral nerve block in adult surgical patients: systematic review, meta-analysis, and trial sequential analysis of

- randomised controlled trials, **British Journal of Anaesthesia**, 2024;132:1112-1121.
[Co-principal investigator]
7. Singh NP, ***Makkar JK***, Borle A, Singh PM. Role of supplemental regional blocks on postoperative neurocognitive dysfunction after major non-cardiac surgeries: a systematic review and meta-analysis of randomized controlled trials. **Regional Anesthesia & Pain Medicine** 2024; 49:49-58. **[Co-principal investigator]**
 8. Singh NP, ***Makkar JK***, Koduri S, Singh PM. Efficacy of Different Approaches of Quadratus Lumborum Block for Postoperative Analgesia After Cesarean Delivery: A Bayesian Network Meta-analysis of Randomized Controlled Trials. The **Clinical Journal of Pain** 2023; 39:634-642. **[Co-principal author]**
 9. Goyal A, ***Makkar JK***, Ghai B, Sharma R, Kumar V. Cross-Cultural Adaptation and Validation of Hindi Version of EuroQol (EQ-5D-3L) Health Questionnaire in Patients with Chronic Low Back Pain. **Spine (Phila Pa 1976)**. 2023 Oct 1;48(19):E330-E338. **[Co-principal author]**
 10. Mohan A, Sharma R, Ghai B, Kumar V, ***Makkar JK***, Jain A. Cross-cultural Adaptation and Validation of Hindi Version of Roland Morris Disability Questionnaire for Chronic Low Back Pain in Indian Population. **Spine (Phila Pa 1976)** 2023; 48:364-370. **[Co-investigator]**
 11. Ghai B, Kumar M, ***Makkar JK***, Goni V. Comparison of ultrasound-guided pulsed radiofrequency of genicular nerve with local anesthetic and steroid block for management of osteoarthritis knee pain. **Korean Journal of Pain** 2022; 35:183-190. **[Co-investigator]**
 12. Singh NP, ***Makkar JK***, Yadav N, Goudra BG, Singh PM. The analgesic efficacy of intravenous dexamethasone for post-caesarean pain: A systematic review with meta-analysis and trial sequential analysis. **European Journal of Anaesthesiology** 2022; 39:498-510. **[Co-principal investigator]**
 13. Singh NP, Monks D, ***Makkar JK***, Palanisamy A, Sultan P, Singh PM. Efficacy of regional blocks or local anaesthetic infiltration for analgesia after caesarean delivery: a

- network meta-analysis of randomised controlled trials. **Anaesthesia** 2022; 77:463-474. **[Co-investigator]**
14. Singh NP, ***Makkar JK***, Kuberan A, Guffey R, Uppal V. Efficacy of regional anesthesia techniques for postoperative analgesia in patients undergoing major oncologic breast surgeries: a systematic review and network meta-analysis of randomized controlled trials. **Can J Anaesth.** 2022; 69:527-549. **[Co-principal investigator]**
 15. ***Makkar JK***, Bandyopadhyay A, Jain K, Jafra A, Gopinathan NR, Singh P. Effect of perioperative sciatic nerve block on chronic pain in patients undergoing below-knee amputation: A randomised controlled trial. **Indian J Anaesth.** 2022 ;66: S300-S306. **[Principal investigator]**
 16. Singh NP, ***Makkar JK***, Jafra A, Verma P, Singh PM. The effect of two groups of intrathecal fentanyl doses on analgesic outcomes and adverse effects in parturients undergoing cesarean delivery: a systematic review and meta-analysis of randomized controlled trials with trial sequential analysis. **International Journal of Obstetric Anesthesia** 2022; 50:103270. **[Co-principal investigator]**
 17. ***Makkar JK***, Singh NP, Bhatia N. Pectoral block versus paravertebral block: methodological concerns. **Regional Anesthesia & Pain Medicine** 2021; 46:1119-1120. **[Principal investigator]**
 18. Singh NP, ***Makkar JK***, Bhatia N, Singh PM. The analgesic effectiveness of ilioinguinal-iliohypogastric block for caesarean delivery: A meta-analysis and trial sequential analysis. **European Journal of Anaesthesiology** 2021; 38:S87-S96. **[Co-principal investigator]**
 19. ***Makkar JK***, Singh NP, Bhatia N, Samra T, Singh PM. Fascia iliaca block for hip fractures in the emergency department: meta-analysis with trial sequential analysis. **American Journal of Emergency Medicine** 2021; 50:654-660. **[Principal investigator]**
 20. Singh NP, ***Makkar JK***, Yadav N, Goudra BG, Singh PM. The analgesic efficacy of intravenous dexamethasone for postcaesarean pain A systematic review with meta-analysis and trial sequential analysis. **European Journal of Anaesthesiology** 2022; 39:498-510. **[Co-principal investigator]**

21. Bindu HM, Dogra N, ***Makkar JK***, Bhatia N, Meena S, Gupta R. Limited condylar mobility by ultrasonography predicts difficult direct laryngoscopy in morbidly obese patients: An observational study. **Indian Journal of Anaesthesia** 2021; 65:612-618. **[Co-investigator]**
22. ***Makkar JK***, Dahiya D, Jain D, Kuber A, Kajal K, Singh NP. Effect of balanced anaesthesia with and without modified pectoralis nerve block on postoperative analgesia after breast surgeries: A randomized controlled trial. **Indian Journal of Anaesthesia** 2021; 65: S110-S114. **[Principal investigator]**
23. Kewlani A, Bhatia N, ***Makkar JK***, Kumar V. Median Effective Volume of 0.5% Ropivacaine for Ultrasound-guided Costoclavicular Block. **Anesthesiology** 2021; 134:617-625. **[Co-investigator]**
24. Ghai B, Gupta AK, ***Makkar JK***, Dhatt SS. Contrast Medium Volume Needed to Reach Anterior Epidural Space via the Kambin Triangle or Subpedicular Approach for Transforaminal Epidural Injection. **Pain Physician** 2020; 23:383-392. **[Co-investigator]**
25. Singh NP, ***Makkar JK***, Borle A, Monks D, Goudra BG, Zorrilla-Vaca A, Singh PM. The analgesic efficacy of quadratus lumborum block in caesarean delivery: a meta-analysis and trial sequential analysis. **Journal of Anesthesia** 2020; 34:814-824. **[Co-principal investigator]**
26. Singh NP, ***Makkar JK***, Bhatia N, Singh PM. The analgesic effectiveness of ilioinguinal-iliohypogastric block for caesarean delivery: A meta-analysis and trial sequential analysis. **European Journal of Anaesthesiology** 2020; 38:S87-S96. **[Co-principal investigator]**
27. Singh NP, ***Makkar JK***, Borle A, Singh PM. Analgesic efficacy of erector spinae plane block for oncologic breast surgery: A meta-analysis and trial sequential analysis. **The Breast Journal** 2020; 26:2295-2298. **[Co-principal investigator]**
28. Singh NP, ***Makkar JK***, Cappellani RB, Sinha A, Lakshminarasimhachar A, Singh PM. Efficacy of topical agents for prevention of postoperative sore throat after single

- lumen tracheal intubation: a Bayesian network meta-analysis. **Canadian Journal of Anaesthesia** 2020; 67:1624-1642. **[Co-principal investigator]**
29. Singh NP, ***Makkar JK***, Wourms V, Cappellani RB. Under pressure: another clinical scenario **Canadian Journal of Anaesthesia** 2019; 66:334-335. **[Co-principal investigator]**
30. ***Makkar JK***, Jain K, Kuberan A, Balasubramanian M, Bhatia N, Singh PM. Pre-emptive multimodal analgesic regimen reduces post-operative epidural demand boluses in traumatic shaft of femur fracture - A randomised controlled trial. **Indian Journal of Anaesthesia** 2019; 63:895-899. **[Principal investigator]**
31. Singh NP, ***Makkar JK***, Wourms V, Zorrilla-Vaca A, Cappellani RB, Singh PM. Role of topical magnesium in post-operative sore throat: A systematic review and meta-analysis of randomised controlled trials. **Indian Journal of Anaesthesia** 2019; 63:520-529. **[Co-principal investigator]**
32. ***Makkar JK***, Gourav KKP, Jain K, Singh PM, Dhatt SS, Sachdeva N, Bhadada S. Transforaminal Versus Lateral Parasagittal Versus Midline Interlaminar Lumbar Epidural Steroid Injection for Management of Unilateral Radicular Lumbar Pain: A Randomized Double-Blind Trial. **Pain Physician** 2019; 22:561-573. **[Principal investigator]**
33. Singh NP, ***Makkar JK***, Wourms V, Singh PM. Topical benzydamine for preventing postoperative sore throat. **Anaesthesia** 2018; 73:1297. **[Co-principal investigator]**
34. Singh PM, Borle A, Panwar R, ***Makkar JK***, McGrath I, Trikha A, Sinha A. Perioperative antiemetic efficacy of dexamethasone versus 5-HT₃ receptor antagonists: a meta-analysis and trial sequential analysis of randomized controlled trials. **European Journal of Clinical Pharmacology** 2018; 74:1201-1214. **[Co-investigator]**
35. Singh NP, ***Makkar JK***, Singh PM. Reporting of time to rescue analgesia: Would it have made a difference in results? **European Journal of Anaesthesiology** 2018; 35:986-987. **[Co-principal investigator]**
36. Singh PM, Borle A, ***Makkar JK***, Trikha A, Fish D, Sinha A. Haloperidol Versus 5-HT₃ Receptor Antagonists for Postoperative Vomiting and QTc Prolongation: A

- Noninferiority Meta-Analysis and Trial Sequential Analysis of Randomized Controlled Trials. **Journal of Clinical Pharmacology** 2018; 58:131-143. **[Co-investigator]**
37. ***Makkar JK***, Jain D, Jain K, Pareek A. Vasovagal mediated cardiac arrest during epidural catheter insertion in a patient with previous uneventful surgeries under regional anesthesia. **Journal of Anaesthesiology Clinical Pharmacology** 2018; 34:268-269. **[Principal investigator]**
38. ***Makkar JK***, Kumar B, Jain K, Dhutt SS, Batra YK, Singh PM. Effect of Different Volumes on Pain Relief in Patient Receiving Fluoroscopic Guided Interlaminar Lumbar Epidural Steroid Injection. **Pain Physician** 2018; 21: 243-250. **[Principal investigator]**
39. ***Makkar JK***, Dwivedi D, Kuberan A, Kumar B, Bala I. Minimum Alveolar Concentration of Desflurane for Maintaining BIS Below 50 in Children and Effect of Caudal Analgesia on it. **Anesthesia and Essays Research** 2018; 12:512-516. **[Principal investigator]**
40. Sudhakaran R, ***Makkar JK***, Jain D, Wig J, Chabra R. Comparison of bispectral index and end-tidal anaesthetic concentration monitoring on recovery profile of desflurane in patients undergoing lumbar spine surgery. **Indian Journal of Anaesthesia** 2018; 62:516-523. **[Co-principal investigator]**
41. Singh PM, Borle A, ***Makkar JK***, Trisha A, Sinha A. Evaluation of transversus abdominis plane block for renal transplant recipients - A meta-analysis and trial sequential analysis of published studies. **Saudi Journal of Anaesthesia** 2018; 12:261-271. **[Co-investigator]**
42. Kuberan A, Jain K, Bagga R, ***Makkar JK***. The effect of spinal hyperbaric bupivacaine-fentanyl or hyperbaric bupivacaine on uterine tone and fetal heart rate in labouring women: a randomised controlled study. **Anaesthesia** 2018; 73:832-838. **[Senior investigator]**
43. Singh PM, Borle A, ***Makkar JK***, Trikha A, Fish D, Sinha A. Haloperidol Versus 5-HT(3) Receptor Antagonists for Postoperative Vomiting and QTc Prolongation: A Noninferiority Meta-Analysis and Trial Sequential Analysis of Randomized Controlled Trials. **Journal of Clinical Pharmacology** 2017 Sep 15. **[Co-investigator]**

44. **Makkar JK**, Singh NP, Singh PM. Prolongation of Apnea Time in Obese Patients- Concerns With Rate of Rise of CO₂. **Anesthesia Analgesia** 2017 Aug 8.
45. Zorrilla-Vaca A, **Makkar JK**. Effectiveness of Lateral Decubitus Position for Preventing Post-Dural Puncture Headache: A Meta-Analysis. **Pain Physician** 2017; 20:E521-E529. **[Co-principal investigator]**
46. Singh PM, Borle A, Gouda D, **Makkar JK**, Arora MK, Trikha A, Sinha A, Goudra B. Efficacy of palonosetron in postoperative nausea and vomiting (PONV)-a meta-analysis. **Journal of Clinical Pharmacology** 2016; 34:459-482. **[Co-investigator]**
47. Jain K, **Makkar JK**, Subramani VS, Gander S, Kumar P. A randomized trial comparing prophylactic phenylephrine and ephedrine infusion during spinal anesthesia for emergency cesarean delivery in cases of acute fetal compromise. **Journal of Clinical Anesthesia** 2016; 34:208-15. **[Co-principal investigator]**
48. **Makkar JK**, Singh PM, Jain D, Goudra B. Particulate vs Non-Particulate Steroids for Transforaminal Epidural Steroid Injections: Systematic Review and Meta-analysis of the Current Literature. **Pain Physician**. 2016; 19:327-340. **[Principal investigator]**
49. Singh PM, Borle A, Shah D, Sinha A, **Makkar JK**, Trikha A, Goudra BG. Optimizing Prophylactic CPAP in Patients Without Obstructive Sleep Apnoea for High-Risk Abdominal Surgeries: A Meta-regression Analysis. **Lung** 2016; 194:201-17. **[Co-investigator]**
50. Singh PM, Borle A, Rewari V, **Makkar JK**, Trikha A, Sinha AC, Goudra B. Aprepitant for postoperative nausea and vomiting: a systematic review and meta-analysis. **Postgraduate Medical Journal** 2016; 92:87-98. **[Co-investigator]**
51. **Makkar JK**, Bhatia N, Bala I, Dwivedi D, Singh PM. A comparison of single dose dexmedetomidine with propofol for the prevention of emergence delirium after desflurane anaesthesia in children. **Anaesthesia** 2016; 71:50-7. **[Principal investigator]**
52. **Makkar JK**, Jain K, Jain D, Jafra A. Dexmedetomidine and emergence agitation. **Anaesthesia** 2015; 70:878-891. **[Principal investigator]**

53. **Makkar JK**, Gaudi B, Jain K, Jain D, Batra YK. Comparison of erythromycin versus metoclopramide for gastric feeding intolerance in patients with traumatic brain injury: A randomized double-blind study. **Saudi Journal of Anaesthesia** 2016; 10:308-313. **[Principal investigator]**
54. **Makkar JK**, Jain D, Jain K, Subramanyam R. Extravasation of fluid in neck secondary to perforation of vein by venous catheter. **Journal of Anaesthesiology Clinical Pharmacology** 2016; 32:124-125. **[Principal investigator]**
55. **Makkar JK**, Jain K, Jain A. Circuit leak with D-vapor. **Journal of Anaesthesiology Clinical Pharmacology** 2015; 31:260-1. **[Principal investigator]**
56. **Makkar JK**, Jain D, Jain K. Asystole during epidural catheter insertion in a patient with previous uneventful surgeries under regional anaesthesia. **Journal of Anaesthesiology Clinical Pharmacology** 2015. **[Principal investigator]**
57. **Makkar JK**, Singh NP, Rastogi V. Volume of contrast and selectivity for lumbar transforaminal epidural steroid injection. **Pain Physician** 2015; 18:101-105. **[Principal investigator]**
58. **Makkar JK**, Jain K, Bhatia N. Comparison of analgesic efficacy of paracetamol and tramadol for pain relief in active labor. **Journal of Clinical Anesthesia** 2015; 27:159-163. **[Principal investigator]**
59. Swini KA, Jain K, **Makkar JK**, Bagga R. Intrathecal opioids and fetal heart rate abnormalities. **Anaesthesia** 2014; 69:1290-1291. **[Co-investigator]**
60. **Makkar JK**, Singh NP. The starting time: is the choice right? **Paediatric Anaesthesia** 2014; 24:1015. **[Principal investigator]**
61. **Makkar JK**, Ghai B, Wig J. Minimum alveolar concentration of desflurane with caudal analgesia for laryngeal mask airway removal in anesthetized children. **Paediatric Anaesthesia** 2013; 23:1010-1014. **[Principal investigator]**
62. Jain K, **Makkar JK**, Anbarasan I, Yadanappudi S, Gander S. A Randomized Double-Blind Comparison Of Low-Dose And High-Dose Bupivacaine For Caesarean Section In Severely Preeclamptic Women Using Invasive Blood Pressure Monitoring. **Journal of Obstetric Anaesthesia & Critical Care** 2013; 3:84-90. **[Co-principal investigator]**

63. Jain A, Ghai B, Jain K, ***Makkar JK***, Mangal K, Sampley S. Severe autonomic dysreflexia induced cardiac arrest under isoflurane anesthesia in a patient with lower thoracic spine injury. **Journal of Anaesthesiology Clinical Pharmacology** 2013; 29:241-243. **[Co-investigator]**
64. ***Makkar JK***, Singh NP. ED50 of sevoflurane for Laryngeal Mask Airway Supreme insertion: reliability! **European Journal of Anaesthesiology** 2013 Jul 19. **[Principal investigator]**
65. ***Makkar JK***, Jain K, Singh NP. The starting dose. **Regional Anesthesia & Pain Medicine** 2012; 37: 461-2. **[Principal investigator]**
66. Jain A, ***Makkar JK***, Sahni N, Solanki SL. An unusual defect in the nitrous oxide pipeline. **Journal of Anaesthesiology Clinical Pharmacology** 2012; 28:267-268. **[Co-principal investigator]**
67. ***Makkar JK***, Singh NP. Absence of perioperative analgesia in children with cerebral palsy: how justified is it? **Paediatric Anaesthesia** 2012; 22:178. **[Principal investigator]**
68. Jain K, ***Makkar JK***, Yadanappudi S, Anbarasan I, Gander S. Two doses of spinal bupivacaine for caesarean delivery in severe preeclampsia: a pilot study. **International Journal of Obstetric Anesthesia** 2012; 21:195-196. **[Co-principal investigator]**
69. Jain A, Bala I, ***Makkar JK***. Anesthetic management of Prader-Willi syndrome: what if neuromuscular relaxants could not be avoided? **Journal of Anesthesia** 2012; 26:304-305. **[Senior investigator]**
70. ***Makkar JK***, Ghai B, Bhardwaj N, Wig J. Minimum alveolar concentration of desflurane with fentanyl for laryngeal mask airway removal in anesthetized children. **Paediatric Anaesthesia** 2012; 22:335-340. **[Principal investigator]**
71. ***Makkar JK***, Wig J, Singh NP. ED50 of desflurane for LMA removal: is the estimate reliable? **Anaesthesia** 2011; 66:954. **[Principal investigator]**

72. **Makkar JK**, Arora S, Jain K, Wig J. ED50 of desflurane for laryngeal mask airway removal in anaesthetised adults. **Anaesthesia** 2011; 66:808-11. [**Principal investigator**]
73. **Makkar JK**, Wig J. ED50 of levobupivacaine with clonidine: is the starting dose right? **Paediatric Anaesthesia** 2011; 21:908-909. [**Principal investigator**]
74. Jain A, **Makkar JK**, Batra YK. Easy way of improving seal with Rendell-Baker-Soucek mask: Old equipment revisited. **Saudi Journal of Anaesthesia** 2011; 5:237-238. [**Co-principal investigator**]
75. Jain A, Bhagat H, **Makkar JK**, Mangal K. Continuous thoracic epidural analgesia for pain management in achondroplastic patient undergoing unilateral nephrectomy. **Saudi J Anaesth.** 2011; 52: 234-5. [**Co-investigator**]
76. Ghai B, Ram J, **Makkar JK**, Wig J. Fiber-optic assessment of LMA position in children: a randomized crossover comparison of two techniques. **Paediatric Anaesthesia** 2011; 21:1142-1147. [**Co-investigator**]
77. **Makkar JK**, Jain K, Wig J. Emergence delirium: can pain be totally ruled out as a cause after giving block? **European Journal of Anaesthesiology** 2012; 29:52-53. [**Principal investigator**]
78. **Makkar JK**, Wig J. Minimum local analgesic concentration of ropivacaine for intra-operative caudal analgesia in pre-school and school age children – analysis using the Dixon method. **Anaesthesia** 2011; 66:227. [**Principal investigator**]
79. Solanki SL, Jain A, **Makkar JK**, Nikhar SA. Severe stridor and marked respiratory difficulty after right-sided supraclavicular brachial plexus block. **Journal of Anesthesia** 2011 Jan 7. [**Co-investigator**]
80. Jain A, **Makkar JK**, Mangal K. Electrocautery-induced artifactual ST-segment depression in a patient with coronary artery disease. **Journal of Electrocardiology** 2010; 43:336-7. [**Co-principal investigator**]
81. Ghai B, Ram J, **Makkar JK**, Wig J, Kaushik S. Re-Blind enough? Sham subtenon block in pediatric patients. **Anesthesia Analgesia** 2009; 109:1349-1350. [**Co-investigator**]

82. **Makkar JK**, Wig J. Up-down study--is the analysis adequate? **Anaesthesia and Intensive Care**. 2010; 38:208-209. **[Principal investigator]**
83. **Makkar JK**, Singh NP, Rastogi V. Herpes zoster: are selective nerve root injections the treatment or the cause? **Pain Physician** 2010; 13:196-198. **[Principal investigator]**
84. Ghai B, **Makkar JK**, Bala I, Wig J. Effect of parecoxib pretreatment and venous occlusion on propofol injection pain: a prospective, randomized, double-blinded, placebo-controlled study. **Journal of Clinical Anesthesia** 2010; 22:88-92. **[Co-principal investigator]**
85. Ghai B, **Makkar JK**, Chari P, Rao KL. Addition of midazolam to continuous postoperative epidural bupivacaine infusion reduces requirement for rescue analgesia in children undergoing upper abdominal and flank surgery. **Journal of Clinical Anesthesia** 2009; 21:113-119. **[Co-principal investigator]**
86. Ghai B, Ram J, **Makkar JK**, Wig J, Kaushik S. Subtenon block compared to intravenous fentanyl for perioperative analgesia in pediatric cataract surgery. **Anesthesia Analgesia** 2009; 108: 1132-1138. **[Co-investigator]**
87. **Makkar JK**, Singh NP. Postoperative oxygen therapy in children, a more comfortable way. **Paediatric Anaesthesia** 2008; 18:1102-1103. **[Principal investigator]**
88. Ghai B, **Makkar JK**, Wig J. Postoperative pain assessment in preverbal children and children with cognitive impairment. **Paediatric Anaesthesia** 2008; 18:462-477. **[Co-principal investigator]**
89. Ghai B, **Makkar JK**, Bhardwaj N, Wig J. Laryngeal mask airway insertion in children: comparison between rotational, lateral and standard technique. **Paediatric Anaesthesia** 2008; 18:308-312. **[Co-principal investigator]**
90. Ghai B, **Makkar JK**, Malhotra S, Wig J, Manjunath V. Postoperative cardiovascular instability caused by malfunctioning ventilatory dual knob. **Paediatric Anaesthesia** 2008; 18:85-86. **[Co-principal investigator]**
91. Wig J, Ghai B, **Makkar JK**. Emergency anaesthesia for unprepared patients: A Review. **Indian Journal of Anaesthesia** 2008; 52:676-688. **[Senior investigator]**
92. **Makkar JK**, Singh NP. Damage to high-pressure tubing by continuous propofol infusion. **Paediatric Anaesthesia** 2007; 17:709-710. **[Principal investigator]**

93. Sen I, ***Makkar JK***, Singh NP. Preventing kinking of suction tubing of transposable electrical suction device and wall-mounted vacuum units. **Paediatric Anaesthesia** 2007; 17:599-600. **[Co-principal investigator]**
94. Ghai B, ***Makkar JK***, Bakshi J, Rana S, Singh RS, Bhagat S. Survival of a child without sequelae after tracheoarterial fistula. **Paediatric Anaesthesia** 2007; 17:588-591. **[Co-principal investigator]**
95. Ghai B, ***Makkar JK***, Behra BK, Rao KP. Is a fall in baseline heart rate a reliable predictor of a successful single shot caudal epidural in children? **Paediatric Anaesthesia** 2007; 17:552-556. **[Co-principal investigator]**
96. Ghai B, Saxena AK, ***Makkar JK***. A guide to reducing citation errors in bibliographies. **Emergency Medical Journal** 2007; 24:232-233. **[Senior investigator]**
97. ***Makkar JK***, Ghai B, Kumar M, Kumar S. Infection of a congenital epidural dermoid cyst secondary to lumbar puncture. **Anesthesia Analgesia** 2007; 104:227-228. **[Principal investigator]**
98. Ghai B, Panda N, ***Makkar JK***, Saxena AK. Pediatric computed tomographic scan with anesthesia: what the anesthesiologist should know. **Anesthesia Analgesia** 2006; 103:1623. **[Co-investigator]**
99. Arora S, Nagdeve NG, ***Makkar JK***, Sharma RK. Fixation of an oral tracheal tube to the maxilla in maxillofacial surgery. **Anesthesia Analgesia** 2006; 103:1620. **[Co-investigator]**
100. Ghai B, ***Makkar JK***, Arora S. Intraoperative cardiac arrest because of oculocardiac reflex and subsequent pulmonary edema in a patient with extraocular cysticercosis. **Paediatric Anaesthesia** 2006; 16:1194-1195. **[Co-principal investigator]**
101. Saxena AK, Ghai B, ***Makkar JK***. Patient's consent for publication of case report: need for developing a universal consent form. **Arch Dis Child**. 2006; 91:717.
102. Ghai B, ***Makkar JK***, Bhatia A. Hypercarbia and arrhythmias resulting from faulty Bain circuit: a report of two cases. 2006; 102:1903-1904. **[Co-principal investigator]**
103. Ghai B, ***Makkar JK***. Preventing the kinking of sampling tube of capnography apparatus. **Paediatric Anaesthesia** 2005; 15:1146-1147. **[Co-principal investigator]**

104. Ghai B, ***Makkar JK***. An unusual cause of faulty Tec 7 vaporizer. **Anesthesia Analgesia** 2005; 101:1890-1891. **[Senior investigator]**
105. Ghai B, ***Makkar JK***, Wig J. Neuromuscular Monitoring- A Review. **J Anaesth Clin Pharmacol** 2006; 22:347-356. **[Co-principal investigator]**

Chapters in Books

1. ***Makkar JK***, Tundak M **A Guide to Use of Crystalloids**. In Acute Trauma Care in Developing Countries
2. ***Makkar JK***, Tundak M **Shock in Trauma** in Acute Trauma Care in Developing Countries
3. Ghai B, ***Makkar JK***, Bansal D **Postoperative pain control for older persons in IASP book 2018**
4. Singh NP, ***Makkar JK***, Jafra A, Sehgal IS. Anesthetic Management of Tracheal/Airway Stents. In Allman KG, Wilson IH (eds) **Anaesthesia for Uncommon and Emerging Procedures**, 1st edition. **Springer**, Philadelphia: 2021.
5. Jain K, ***Makkar JK***. Dexmedetomidine: Perioperative Applications and Limitations In Yearbook of Anesthesiology -6 Jan 2017

National and International teaching presentations

1. Faculty for Society of Critical Care Medicine (USA) Adult Critical Care Ultrasound Workshop held at the **National University Hospital, Singapore, 2024**.
2. *Invited as Faculty to teach ‘Ultrasound Guided Pain Interventions for Shoulder’ at Pain Association Singapore Cadaver & Ultrasound Guided Pain Intervention Workshop, Singapore, 2023*.
3. Delivered a talk on ‘**Interventions in CRPS**’ at the **7th ICRA-PAIN along with the 2nd International Conference on Pain, Dhaka, Bangladesh 2022**
4. Delivered a lecture on “**On arrival blocks**” during **2nd Annual Conference of Society of Trauma Anesthesia and Critical Care** held at Banaras Hindu University, Varanasi, **4th to 6th October 2024**.

5. Course coordinator for the workshop on POCUS in perioperative period conducted during
 - **2nd Annual Conference of the Society of Trauma Anesthesia and Critical Care** held at Banaras Hindu University, Varanasi, 4th to 6th October 2024.
 - **20th North zone conference of the Indian Society of Anesthesiologists** held at Jammu from 20th to 22nd Sept 2024
6. Debated Pro on “**IV Lignocaine infusion for pain management**” and delivered a talk on “**Point of Care testing**” during **20th North zone conference of Indian Society of Anesthesiologists** held at Jammu from 20th to 22nd Sept 2024
7. Delivered a lecture on “**RFA of Gasserian ganglion- How do I do it**” during 71st Annual Conference of Indian Society of Anesthesiologist held at Patna from 20th to 24th Nov 2024
8. Panelist '**Crisis Resource Management and Patient Safety**' Workshop & Conference on 10th- 11th February 2024, DMC Ludhiana.
9. Faculty for **perioperative POCUS workshop** held on 18th January 2024 as a part of **GARC 2024**
10. Invited faculty to teach abdominal blocks at Comprehensive Cadaveric USG guided **Regional Anaesthesia CME and workshop** conducted at **AIIMS Kalyani**, 2023.
11. Invited faculty to moderate a panel on **Anaesthesiology to pain practice - How to switch & different modes** at **40th Annual Conference of Indian society for Study of Pain** held at Pune from 2nd to 5th Feb 2024.
12. Invited faculty to teach **eFAST at the POCUS workshop** as part of the **13th Annual Conference of Academy of Regional Anaesthesia of India**, Pune, India, 2023.
13. Invited faculty to teach fluoroscope-guided lumbar procedures at **Chronic Pain workshop** as a part of the **70th Annual National Conference of the Indian Society of Anaesthesiologists**, Gurugram, India 2023.
14. Invited faculty to talk Con on **RFA-Cooled VS Conventional at** the 70th Annual National Conference of the Indian Society of Anaesthesiologists, **70th Annual National Conference of the Indian Society of Anaesthesiologists**, Gurugram, Haryana, 2023.

15. Invited faculty to talk ‘**Approach to a Case of CRPS**’ and ‘**Particulate steroids-current evidence**’ at the **6th National and 1st International Conference of Indian Society of Pain Clinicians**, Lucknow, India, 2023.
16. Invited faculty to teach eFAST at the **POCUS workshop** conducted as part of **GARC Coimbatore, India, 2024**.
17. Moderated a panel on ‘**Strategizing low back pain management**’ in the **37th Annual National Conference of the Indian Society for Study of Pain**, Amritsar, India, 2023
18. Faculty in ‘**Chronic Pain Cadaveric Fluoroscopic and Volunteer Ultrasound Guided Workshop**’ in the **3rd International & 13th Annual National Conference of Indian College of Anaesthesiologists**, Chandigarh, India, 2022.
19. Delivered a talk on ‘**Ambulatory knee arthroplasty**’ at "**3rd International & 13th Annual National Conference of Indian College of Anaesthesiologists**, Chandigarh, India, 2022.
20. Faculty for ‘**Chronic pain workshop**’ at the **69th Annual National Conference of Indian Society of Anaesthesiology**, Shillong, India, 2022.
21. Participated in pro-Con session on ‘**Fascial Plane Block is better than Neuraxial Block for lower abdominal surgery**’ at the **69th Annual National Conference of Indian Society of Anaesthesiology**, Shillong, India, 2022.
22. Panelist in a panel discussion on ‘**Peripheral Nerve Entrapment**’ at the **Annual National Conference of the Indian Society for Study of Pain**, Bhubaneswar, India, 2022.
23. Delivered a talk on ‘**Opioid sparing/Opioid free anaesthesia: relevance in major HPB & GI surgery**’ at the **1st Hepato-Pancreato-Biliary and Gastrointestinal Anesthesia and Perioperative Care National Conference** Mumbai, India, 2022.
24. Invited faculty for “**Lumbar sleeve root injection**” at the **International Conference on Recent Advances in Pain**, Nagpur, India, 2019.
25. Invited faculty for ‘**Complications in Interventional Pain Management**’ at the **International Conference of Pain Management 2019**, Chandigarh, India, 2019.
26. Resource faculty for workshop on ‘**Musculoskeletal pain**’ at the **International Conference of Pain Management 2019**, Chandigarh, India, 2019.

27. Invited faculty to deliver a talk on the '**Evidence-based use of NSAID in chronic pain**' at the **National Conference of Indian Society for the Study of Pain**, Ahmadabad, India, 2020.
28. **Judge** for the **Poster Presentation** at the **5th National Conference of the Indian Society of Pain Clinicians**, New Delhi, India, 2019.
29. Invited faculty to deliver a talk on "**Neuropathic Drugs**" at the **5th National Conference of the Indian Society of Pain Clinicians**, New Delhi, India, 2019.
30. Resource faculty for the **workshop on Musculoskeletal pain** at the **5th National Conference of the Indian Society of Pain Clinicians**, New Delhi, India, 2019.
31. Faculty for a workshop on '**Fluoroscopic Guided Chronic Pain Procedures**' at **RSACPCON**, Jaipur, India, 2018..
32. Delivered a talk on '**Central Vs Lateral Canal Stenosis: Diagnosis & Management**' At **ICPM**, Goa, India 2017.
33. Delivered a talk on "**Newer agents for neuropathic pain**" at **ICRA**, Pune, India 2017.
34. Delivered a talk on '**Interventions in chronic pain**' at **GOSICON**, Chandigarh, India, 2017.
35. Delivered a talk on '**Diagnostic blocks, are they really needed**' AT **ISSPCON**, Indore, India, 2016.
36. Delivered a talk on "**Stellate Ganglion block**" at **AIIMS Pain Practice and Regional Anaesthesia Conference**, New Delhi, India, 2016.
37. Delivered a talk on "**Is Chronic pancreatitis pain a neuropathic pain**" at the **Global Update of Pain**, Mumbai, India, 2015.
38. Video presentation of **facet joint injection** at the **25th National Conference of Research Society of Anesthesiologists and Clinical Pharmacology**, Amritsar, India, 2015.
39. "**Painful polyneuropathies**" at **ISSPCON**, Chennai, India, 2015.
40. Delivered a talk on "**Role of ultrasound in neuraxial blocks**" at the **Annual national meeting of the Indian Society of Anesthesiologists**, Madurai, India, 2014.
41. Debated **Pro Spinal Anesthesia for surgeries in prone position GA vs SA**' at **NZ-ISACON**, Jammu, India, 2014.

42. Faculty for the workshop on ultrasound-guided chronic pain procedures at **NZ-ISACON, Jammu, India, 2014.**
43. Faculty for Workshop on “**Ultrasound in chronic pain**” at **RSACPON, Dehradun, India, 2014.**
44. Delivered a talk on “**Chronic noncardiac chest pain- neuralgic or myalgic**” at **ISSPCON, Mumbai, India, 2014.**
45. Delivered a talk on “**Challenges in management of Chronic pain**” at the **ISACON, Guwahati, India, 2013.**
46. Delivered a talk on ‘**Perioperative fluid management in Children**’ at **RSACPON, Srinagar, India, 2013.**
47. 1st world symposium of the **World Institute of Pain Management and 3rd International Conference of Interventional Pain Management, Kolkata, India, 2012.**
48. Panelist in Panel Discussion on ‘**What is New in Labor Analgesia**’ at the **Association of Obstetric Anesthesiologists (AOA), Mangalore, India, 2013.**
49. Delivered a talk on “**Lumbar epidural steroid injections**” in pain at the **North Zone ISACON, 2012.**
50. **Faculty for the cadaveric workshop on chronic pain** at the **North Zone ISACON, 2012.**
51. Delivered a talk on “**Trauma and pain control**” at **Global Update on Pain, Mumbai, India, 2012.**
52. **Debated Con (Regional)** during pro-con debate session of ‘**GA V/S Regional Anesthesia for Recipient in Renal Transplant**’ at **ISACON, Indore, India, 2012.**
53. Debated ‘**Facet Joint injection v/s Median branch block**’ at **ISSPCON, Nagpur, India, 2013.**
54. Invited faculty for the workshop on labor analgesia at the **Association of Obstetric Anaesthesiologists (AOA), Hyderabad, India, 2011.**
55. Delivered a talk on ‘**Role of CSE in labour analgesia**’ at the **Chandigarh Chapter ISA Meeting, India, 2008.**

International Poster presentations

- “Effect of radiofrequency ablation of genicular nerves on the isokinetic muscle strength of knee joint in patients with osteoarthritis knee: A randomized double-blind sham controlled clinical trial.” Presented at **IASP 2024 World Congress on Pain, Amsterdam**
- “Cross cultural adaptation and validation of Hindi version of WHOQOL-Bref in patients with chronic low back pain” presented at **47th Annual Regional Anesthesiology and Acute Pain Medicine, March 31-April 2, 2022, Las Vegas, NV.**
- “Effect of Preprocedural Anxiety on Efficacy of Epidural Steroid Injections in Patients with Radicular Lumbosacral Pain: An Observational Study.” At **IASP World Congress on Pain Toronto, Canada 2022.**
- Incidence of Chronic Pain in Below Knee Amputees Following Perioperative Sciatic Nerve Block: A Randomized Controlled Trial at **17th World Congress of Pain, Boston USA 2018**
- “Comparison of analgesic efficacy of paracetamol and tramadol for pain relief in active labor” at the **16th World Congress on Pain, Buenos Aires, Argentina, 2014.**
- “Selectivity of Contrast Flow During Selective Nerve Root” at the **14th World Congress on Pain, Milan, Italy, 2012.**
- “Median effective dose of spinal bupivacaine alone or with fentanyl for brachytherapy of Carcinoma cervix” at **World Congress on Pain, Montreal, Canada, 2010**