

Curriculum Vitae

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Name : **Chul Ho Chang**

Date of Birth : Nov. 21, 1969

Place of Birth : Seoul, Korea

Nationality: Republic of Korea

Mailing Address: Department of anesthesiology and pain medicine, Gangnam
Severance Hospital, Eunju-ro 211, Gangnam-gu, Seoul, Korea

Phone: : 82-2-2019-3528

Fax: 82-2-3463-0940

e-mail : anezzang@yuhs.ac

EDUCATION AND TRAINING

EDUCATION

Undergraduate: Yonsei University College of Medicine. 1989 - 1996.
Bachelor of Medicine

Graduate: Yonsei University College of Medicine. 2001 - 2003.
Masters of Anesthesiology
Title: Comparison study of spinal anesthesia between supine and prone positions with isobaric bupivacaine

Professional: Yonsei University College of Medicine. 2003 - 2007.
Doctorate of Anesthesiology and Pain Medicine
Title: Potentiation of the inotropic effect of isoproterenol by

naloxone in vitro; Non-opiate receptor mechanism

PROFESSIONAL EXPERIENCE

Internship: Yongdong Severance Hospital, Seoul, Korea. 1996 - 1997

Resident: Yongdong Severance Hospital, Seoul, Korea. 1998 - 2001

Chief Resident, Anesthesiology and Pain Medicine 2001

Fellowship: Yongdong Severance Hospital, Seoul, Korea. 2002 - 2004

ACADEMIC APPOINTMENTS

Full-time Instructor of Yonsei University, Seoul, Korea. 2005 - 2006

Assistant Professor of Yonsei University, Seoul, Korea. 2007 - 2010

Associate Professor of Yonsei University, Seoul, Korea. 2011 - 2017

Research Years: Science, Engineering and Arts School of University of Pennsylvania,
Philadelphia, USA, 2014 - 2016

Professor of Yonsei University, Seoul, Korea, 2018 - Present

CERTIFICATE

1996 Medical Qualification 58250

2002 Diplomat of the Korean Board of Anesthesiology and Pain Medicine 2455

2009 Diplomat of the Korean Board of Critical Care Medicine 786

2009 Certificate of completion Intensive advanced course of Pharmacoepidemiology

2018 Certificate of Simulation instructor course

ACADEMIC SOCIETY MEMBERSHIPS

Korean Society of Anesthesiologists

Korean Society of Critical Care Medicine

Korean Society of Neuroanesthesia

Korean Society of Parenteral Enteral Nutrition

Korean Pain Society

Korean Society of Simulation in Healthcare

Korean Society of Clinical Nutrition

Korean Society of Pediatric Anesthesia

Korean Society of Airway Management

PROFESSIONAL ACTIVITY

2007 - 2008 Member of Clinical practice guideline committee in Korean Society of Anesthesiologists

2007 - Present Reviewer of KSA

2008 - Present Reviewer of JKMS

2007 Total nutrition therapist, KSPEN

2009 - 2010 Information director of Korean Society of pediatric anesthesia

2012 QI facilitator: Gangnam Severance Hospital

2012 - 2014 Academy director of Korean Society of Simulation in Healthcare

2012 - 2014 Treasurer of Korean Society of Critical Care Medicine

2016 - 2018 Member of Academic Committee of Korean Society of Anesthesiologists

2016 - 2017 Insurance Director of Korean Society of Critical Care Medicine

2016 - 2020 Commission Specialist: Ministry of Food and Drug Safety

2017 - 2018 Education and Training director of Korean Society of Simulation in Healthcare

2018 - 2019 Treasurer of Korean Society of Critical Care Medicine

2018 - 2019 Chairman of Simulation Committee of Korean Society of Anesthesiologists

2018-2020 Director of Education and Training: Gangnam Severance Hospital

2019-2021 Director of External Cooperation of Korean Society of Emergency Airway Management

2019-2021 Director of Planning of Korean Society for Airway Management

2019-2020 Treasurer of Korean Society of Anesthesthesiologists

2019-2021	Director of the General Business Board of Korean Society of Critical Care Medicine
2021-2023	Director of Planning of Korean Society for Airway Management
2021-2023	Director of Public Relations of Korean Society of Critical Care Medicine
2022-2024	Director of Anesthesiology and Pain Medicine, Gangnam Severance Hospital, Yonsei University College of Medicine

GRANT SUPPORT

1. Chul Ho Chang: Effects of Propofol on β -adrenoceptor-mediated Signal Transduction in Cardiac Muscle. Yonsei University. One Year Award (2005), 10,000,000 won.
2. Chul Ho Chang: Effects of Propofol on β -adrenoceptor-mediated Signal Transduction in Cardiac Muscle. Yonsei University College of Medicine. (2005), 10,000,000 won.
3. Chul Ho Chang: Effect of low carbohydrate high fat enteral formula on the blood sugar levels in brain surgery patients (2009), 15,000,000 won.
4. Chul Ho Chang. Medical emergency care with high fidelity simulator (2010). 33,900,000 won.
5. Chul Ho Chang. Matching fund with Medical emergency care with high fidelity simulator (2010). 10,000,000 won.
6. Chul Ho Chang. Renal protection effect of the nicardipine from deliberated hypotension in spine surgery (2011). 13,000,000 won.
7. Chul Ho Chang. Increase of local anesthetics duration by degradable microparticle tested by organ-on-a-chip (2016). 20,000,000 won.

Honors and Awards

1. Academic Award of KSA, Society of Korean Anesthesiologists, 2003.
2. Award for Best Reviewer of KSA, Society of Korean Anesthesiologists, 2011.
3. Awards for Education of Yonsei University College of Medicine, 2011.
4. Academic Award of Korean Society of Parenteral and Enteral Nutrition, 2012.

PUBLICATIONS

1. Gyu Dae Shim, Yon Hee Shim, Sang Bum Nam, Dae Hee Kim, **Chul Ho Chang**, Jong Seok Lee. Can Ketamine Substitute for Fentanyl in Gynecologic Cone Biopsy Anesthesia? Korean J Anesthesiol 2003;44:325-30.
2. Ki-Young Lee, **Chul Ho Chang**, Sang Bum Nam, Yon Hee Shim, Choel Oh Lee, Jong Seok Lee. Efficacy of the Laryngeal Tube in General Anesthesia. Korean J Anesthesiol 2003;45:687-92.
3. Jong Seok Lee, **Chul Ho Chang**, Yon Hee Shim, Dong Woo Han, Chang Seok Kim, Cheung Soo Shin. Administration Hyperglycemia Aggravates the prognosis of Critically Ill Patients. Korean J Crit Care Med 2004;19:121-5.
4. Dong Woo Han, **Chul Ho Chang**, Jong Seok Lee, Gyu Dae Shim, Jeong Seop Noh, Youn Woo Lee. Effects of Ondansetron or Naloxone Patient-Controlled Analgesia on Postoperative Analgesia and Side Effects. Korean J Anesthesiol 2004;46:434-8.
5. Yon Hee Shim, Cheung Soo Shin, **Chul Ho Chang** and Yang-Sik Shin. Optimal End-Tidal Sevoflurane Concentration for the Removal of the Laryngeal Mask Airway in the Deeply Anesthetized Adults. Anesth Analg 2005;101:1034-7.
6. Yong Beom Kim, Yon Hee Shim, **Chul Ho Chang**, Se Hee Na and Yong Taek Nam. Accidental dislodgement of subclavian venous catheter and subsequent subcutaneous fluid collection in the patient with Prader-Willi syndrome. Korean J Ped Anesth 2005;9:98-102.
7. JS LEE, SB NAM, **CH CHANG**, DW HAN, YW LEE and CS SHIN. Relationship between arterial and end-tidal carbon dioxide pressure during anesthesia using a laryngeal tube. Acta Anaesthesiol Scand 2005;49:759-62.
8. Jong Seok Lee, Sang Beom Nam, Nam Ryong Cho, **Chul Ho Chang**, Yang-Sik Shin and Cheung SooShin. During inhalation anesthesia with sevoflurane using LMA, spontaneous breathing is feasible. Korean J Anesthesiol 2005;48:475-8.
9. **Chul Ho Chang**, Kee Young Lee, Sang Beom Nam, Jin Woo Bae and Cheung Soo Shin. Clinical characteristics of patients who died despite of low APACHE II score after intensive care. Korean J Anesthesiol 2005; 48: S34-7.
10. Hyun Woong No, Jong Seok Lee, **Chul Ho Chang**, Hahn Shick Lee, Jin Woo Bae, Cheung Soo Shin. Prognosis of patients admitted to ICU after cardiopulmonary resuscitation in emergency room. Korean J Anesthesiol 2005;49:77-80.
11. **Chang CH**, Shim YH, Lee YW, Kim YB, Nam YT. Successful management of inadvertent insulin overdose during cholecystectomy in a diabetic patient. Korean J Anesthesiol 2006; 51: S24-7.

12. **Chul Ho Chang**, Sang Beom Nam, Tae-Dong Kim, Hyun Kyu Lee, Kum Hee Chung and Yon-Woo Lee. Efficacy of sufentanil during laryngeal microscopic surgery. Korean J Anesthesiol 2006;50:168-72.
13. **Chul Ho Chang**, Dong Woo Han, Yong Beom Kim, Seon Hee Cho, Yong Taek Nam. Anesthetic management of difficult tracheotomy with Fiberoptic bronchoscope. Korean J Anesthesiol 2006;50:319-21.
14. Yong Beom Kim, **Chul Ho Chang**, So Yeon Kim, Yong Taek Nam. Effect of BMI and patient positioning on airway pressures and respiratory compliance during laparoscopic surgery. Korean J Anesthesiol 2006;50:302-7.
15. Shin CS, **Chang CH**, Kim JH. Liquid heparin anticoagulant produces more negative bias in the determination of ionized magnesium than ionized calcium. YMJ 2006;47:191-5.
16. Dong Woo Han, **Chul Ho Chang**, Jong Seok Lee, Seong Won Na, Hae Gun Yang, Sang Beom Nam. Airway management by extended endotracheal tube for a patient with tracheal stenosis during laryngeal microscopic surgery. Korean J Anesthesiol 2006; 51: 367-70.
17. **Chul Ho Chang**, Seung Ho Choi, Yon Hee Shim, Ki-Young Lee, Hwan-Mo Lee, Yang-Sik Shin. Optimal End-Tidal Concentration of Sevoflurane to Test an Ankle Clonus in Children. Spine 2006;31:E813-6.
18. Dong Woo Han, Tae Dong Kweon, Ki Jun Kim, Jong Seok Lee, **Chul Ho Chang**, Youn-Woo Lee. Does the Tibial and Sural Nerve Transection Model Represent Sympathetically Independent Pain? YMJ 2006; 47: 847-51.
19. Han DW, **Chang CH**, Lee JS, Na SW, Lee SH, Nam SB. Obstruction of an endotracheal tube with change of the head position in a trachea deviated patient. Korean J Anesthesiol 2007; 52: 339-41.
20. Cheung Soo Shin, **Chul Ho Chang**, Shin Ok Koh. The effects of repetitive alveolar recruitment on oxygenation and compliance in ARDS patients. Korean J Anesthesiol 2007; 52: S66-71.
21. **Chul Ho Chang**, Sang Beom Nam, Jong Seok Lee, Dong Woo Han, Hyun Kyu Lee, Cheung Soo Shin. Changes in ionized and total magnesium concentration during spinal surgery. Korean J Anesthesiol 2007; 52: S37-41.
22. Nam SB, **Chang CH**, Lee YW, Lee JS, Yang HG, Jang DJ. Hypoglossal nerve injury following the use of the CobraPLA trade mark. Eur J Anaesthesiol 2007; 8: 1-2.
23. **C. H. Chang**, M. K. Kim, S. B. Nam. The use of the LMA Fastrach™ system as a guidance tool for inaccessible glottic lesion biopsies. Acta Anesthesiol Scand 2007; 51: 1130-1.
24. **Chul Ho Chang**, Yong Woo Hong, Shin Ok Koh. Weaning approach with weaning index for postoperative patients with mechanical ventilator support in ICU. Korean J Anesthesiol 2007; 53: S47-51.

25. Nam SB, Han DW, **Chang CH**, Lee JS. A randomized, crossover comparison between the CobraPLA and LMA Classic in paralyzed patients. *Anaesthesia* 2007; 62: 1285-8.
26. Ji Eun Kim, **Chul Ho Chang**, Yong-Taek Nam. Intubation through a laryngeal mask airway by fiberoptic bronchoscope in an infant with a mass at the base of the tongue. *Korean J Anesthesiol* 2008; 54: S43-6.
27. **Chul Ho Chang**, Yon Hee Shim, Yang-Sik Shin, Ki-Young Lee. Optimal condition for laryngeal mask airway insertion in children can be determined by the trapezius squeezing test. *J Clin Anesth* 2008; 20: 99-102.
28. T.D. Kweon, S. B. Nam, **C. H. Chang**, M. S. Kim, J. S. Lee, C. S. Shin, D. B. June, D. W. Han. The effect of bolus administration of remifentanil on QTc interval during induction of sevoflurane anaesthesia. *Anaesthesia* 2008; 63: 347-51.
29. Ki Bum Kim, **Chul Ho Chang**, Cheung Soo Shin, Jae Woo Lee, Sang Beom Nam. Unilateral pulmonary edema during an operation in patient with undiagnosed pheochromocytoma. *Korean J Anesthesiol* 2008; 55: 502-5.
30. Soo Hwan Kim, Dong-Hyuk Jeon, **Chul Ho Chang**, Sung-Jin Lee, Yang-Sik Shin. Spinal anesthesia with isobaric tetracaine in patients with previous lumbar spinal surgery. *Yonsei Med J* 2009; 50: 252-6.
31. Park WK, **Chang CH**, Chae JE, Kim MH, Cho YL, Ahn DS. Phosphodiesterase inhibition by naloxone augments the inotropic action of β -adrenergic stimulation. *Acta Anaesthesiol Scand* 2009; 53: 1043-51.
32. **Chul Ho Chang**, Sun Joon Bai, Mi Kyeong Kim, Sang Beom Nam. The usefulness of the laryngeal mask airway Fastrach for laryngeal surgery. *Eur J Anaesthesiol* 2010; 27: 20-3.
33. **Chul Ho Chang**, Go Un Roh, Wyun Kon Park. Effects of propofol on β -adrenoreceptor-mediated signal transduction in cardiac muscle; role of cAMP. *Korean J Anesthesiol* 2010; 58: 374-7.
34. **Chul Ho Chang**, Hyun Kyu Lee, Soon Ho Nam. The displacement of the tracheal tube during robot-assisted radical prostatectomy. *Eur J Anaesthesiol* 2010; 27: 478-80.
35. Dong Jin Chang, **Chul Ho Chang**, Jong Seok Lee, Hyun Joo Jeon, Dong Woo Han. Propofol-remifentanil and the ankle clonus test in scoliosis patients. *Anaesthesia* 2010; 65: 749-50.
36. Jae-Chul oh, Jong Seok Lee, Youn-Woo Lee, **Chul Ho Chang**. Comparison of the laryngeal view during intubation using Airtraq and Macintosh laryngoscopes in patients with cervical spine immobilization and mouth opening limitation. *Korean J Anesthesiol* 2010; 59: 314-8.
37. Su Hyun Lee, Ki Jun Kim, **Chul Ho Chang**, Sang-Baek Heo. Cardiac Arrest from Acute Hyperkalemia during Liver Surgery – A Case Report. *Korean J Anesthesiol* 2010; 59: S124-7.

38. Soo Hwan Kim, Duk-Hee Chun, **Chul Ho Chang**, Tae Wan Kim, Young Mi Kim, Yang-Sik Shin. Effects of caudal block on sevoflurane requirement for lower limb surgery in children with cerebral palsy. *Pediatr Anesth* 2011; 21: 3-8.
39. Soo Hwan Kim, Eun Mi Choi, **Chul Ho Chang**, H. K. Kim, M. H. Chung, Y. R. Choi. Comparison of the effect-site concentrations of remifentanyl for Streamlined Liner of the Pharynx Airway (SLIPA™) versus laryngeal mask airway SoftSeal™ insertion during target-controlled infusion of propofol. *Anaesth Intensive Care* 2011; 39: 611-7.
40. **Chul Ho Chang**, Soo Hwan Kim, Yon Hee Shim, Jae Hoon Kim, Yang-Sik Shin. Comparison of trapezius squeezing test and jaw thrust as indicators for laryngeal mask airway insertion in adults. *Korean J Anesthesiol* 2011; 61:201-4.
41. Song Mi Lee, Sun Jung Kim, Hye Kyung Chung, Joo Hye Jeon, Bo Dam Lee, Chang-Ki Hong, Jong Suk Park, **Chul Ho Chang**. The Effects of Low Carbohydrate High Fat Diet on Glucose Control after Brain Injury. *JKSPEN* 2011; 4:21-6.
42. Su Hyun Lee, **Chul Ho Chang**, Jung Soo Park, Sang Bum Nam. Stress-Induced Cardiomyopathy after Negative Pressure Pulmonary Edema during Emergence from Anesthesia – A Case Report. *Korean J Anesthesiol* 2012; 62: 79-82.
43. JW Song, YL Kwak, JW Lee, **CH Chang**, HS Kim, YH Shim. The optimal effect site concentration of remifentanyl in combination with intravenous midazolam and topical lidocaine for awake fiberoptic nasotracheal intubation in patients undergoing cervical spine surgery. *Minerva Anesthesiologica* 2012; 78:521-6.
44. Seohui Ahn, Se Hee Na, **Chul Ho Chang**, Hyunsun Lim, Duk Chul Lee, and Cheung Soo Shin. Effects of APACHE II score and initial nutritional status on prognosis of the critically ill patients. *Korean J Crit Care Med* 2012; 27: 102-7.
45. Song Mi Lee, Seon Hyeung Kim, Yoon Kim, Eunmee Kim, Hee Joon Baek, Seungmin Lee, Hosun Lee, **Chul Ho Chang**, and Cheung Soo Shin. Nutrition support in the intensive care unit of 6 Korean tertiary teaching hospitals: a national multicenter observational study. *Korean J Crit Care Med* 2012; 27: 157-64.
46. Dong Jin Chang, **Chul Ho Chang**, Yon Hee Shim. Isoflurane-Induced Post-conditioning in Senescent Hearts Is Attenuation by Failure to Activate Reperfusion Injury Salvage Kinase Pathway. *Acta Anaesthesiol Scand* 2012; 56: 896-903.
47. **Chul Ho Chang**, Yoo Sang Yoon, Hye In Lee, and Sang Mo Je. Recognizing and treating head injury and cervical cord injury. *J Healthc Simul* 2012; 1: 40-6.

48. **Chul Ho Chang**, Yoo Sang Yoon, Tai Kyung Lee, and Sang Mo Je. Recognizing and treating an Aortic dissection. *J Healthc Simul* 2012; 1: 34-9.
49. Sang Mo Je, **Chul Ho Chang**, Bokyung Nam, Seok-Hwan Hong, Yoo Sang Yoon. Hypothermia in Resuscitation. *J Healthc Simul* 2012; 2: 78-82.
50. Yoo Sang Yoon, Sang Mo Je, Seok-Hwan Hong, Bokyung Nam, **Chul Ho Chang**. Morphine Overdose. *J Healthc Simul* 2012; 2: 37-42.
51. Yoo Sang Yoon, Sang Mo Je, Seok-Hwan Hong, Seung Hyun Kim, **Chul Ho Chang**. Acute Asthma Attack. *J Healthc Simul* 2012; 2: 43-8.
52. Sang Mo Je, **Chul Ho Chang**, Bokyung Nam, Seok-Hwan Hong, Yoo Sang Yoon. Ventricular Fibrillation Causes Sudden Cardiac Arrests. *J Healthc Simul* 2012; 2: 73-7.
53. Sang Mo Je, **Chul Ho Chang**, Bokyung Nam, Seok-Hwan Hong, Yoo Sang Yoon. Management of a Patient with Acute Myocardial Infarction. *J Healthc Simul* 2012; 2: 83-8.
54. **Chul-Ho Chang**. Medical simulation is needed in anesthesia training to achieve patient's safety. *Korean J Anesthesiol* 2013; 64: 204-11.
55. Hye Jin Lee, Sang Beom Nam, Dong Woo Han, and **Chul Ho Chang**. Conversion of orotracheal to nasotracheal intubation using a fiberoptic bronchoscope in a patient with intraoral hematoma. *Korean J Anesthesiol* 2013; 64: 384-5.
56. Jae Chul Koh, Jong Seok Lee, Dong Woo Han, Satbyul Choi, and **Chul Ho Chang**. Increase in Airway Pressure Resulting From Prone Position Patient Placing May Predict Intraoperative Surgical Blood Loss. *Spine* 2013; 38: E678-82.
57. So Yeon Kim, **Chul Ho Chang**, Jong Seok Lee, Yoon Jae Kim, Man Deuk Kim, and Dong Woo Han. Comparison of the Efficacy of Dexmedetomidine plus Fentanyl Patient-controlled Analgesia with Fentanyl Patient-controlled Analgesia for Pain Control in Uterine Artery Embolization for Symptomatic Fibroid Tumors or Adenomyosis: A Prospective, Randomized Study. *J Vasc Interv Radiol* 2013; 24:779-786.
58. Je Sung You, Sung Phil Chung, **Chul Ho Chang**, Incheol Park, Hye Sun Lee, SeungHo Kim, Hahn Shick Lee. Effects of flashlight guidance on chest compression performance in cardiopulmonary resuscitation in a noisy environment. *Emerg Med J* 2013;30:628-632.
59. Youngsoon Kim, Chul Ho Chang, Sung Yeon Ham, and Dong Woo Han. A brief cardiac arrest due to saline irrigation during surgery for infratentorial cerebellar tumor. *Korean J Anesthesiol* 2013;65: S111-2.

60. **Chul Ho Chang**, Jong Wha Lee, Jong Rim Choi, Yon Hee Shim. Effect-Site Concentration of Remifentanyl to Prevent Cough After Laryngomicrosurgery. *Laryngoscope* 2013; 123:3105-9.
61. **Chul Ho Chang**, Yoo Sang Yoon, Seok-Hwan Hong, Sang Mo Je. Management of a Patient with Amputation of a Leg above the Knee in a Car Accident. *J Healthc Simul* 2012; 3: 12-8.
62. Jong Bum Choi, Yon Hee Shim, Youn Woo Lee, Jeong Soo Lee, Jong Rim Choi, **Chul Ho Chang**. Incidence and Risk Factors of Postoperative Nausea and Vomiting in Patients with Fentanyl-Based Intravenous Patient-Controlled Analgesia and Single Antiemetic Prophylaxis. *YMJ* 2014; 55:1430-5.
63. Chul Min Kim, Asad Ulah, **Chul Ho Chang**, Gyu Man Kim. Preparation of Lidocaine-Loaded Porous Poly (Lactic-Co-Glycolic Acid) Microparticles Using Microfluidic Flow Focusing and Phosphate Buffer Solution Porogen. *Int J Precis Eng Manuf* 2017; 18:599-604.
64. **Chul Ho Chang**, Ki-Young Lee, Yon Hee Shim. Normal aging: definition and physiologic changes. *Kor Med Assoc* 2017; 60:358-63.
65. Chol Hee Park, Ji Young Kim, Chanmi Kim, **Chul Ho Chang**. Nicardipine Effects on Renal Function During Spine Surgery. *Spine* 2017; 30:E954-8.
66. Jae Hwan Kim, Sungyeon Ham, Dohyeong Kim, **Chul Ho Chang**, Jeong Soo Lee. Efficacy of Single-Dose Dexmedetomidine Combined with Low-Dose Remifentanyl Infusion for Cough Suppression Compared to High-Dose Remifentanyl Infusion: A Randomized, Controlled, Non-Inferiority Trial. *IJMS* 2019; 16: 376-83.
67. Chul Ho Chang, Hyunjik Song, Sangmin Ko. Unanticipated hyperkalemia during thyroid cancer surgery. *J Healthc Simul* 2020; 4: 26-33.
68. Hye Jin Choi, Tran Bao Ngoc, Hyunjik Song, Chul Ho Chang, Gyu Man Kim. Fabrication of Microfluidic Cell Culture Platform for Real-time Monitoring of Lidocaine Concentration. *Int J Precis Eng. Manuf* 2020; 21:2399-405.
69. Go Un Roh , Joon Gwon Kang , Jung Youn Han and Chul Ho Chang. Utility of oxygen insufflation through working channel during fiberoptic intubation in apneic patients: a prospective randomized controlled study. *BMC Anesthesiology* 2020; 20:282.
70. Ji-Hoon Park, Hye-Mi Lee, Chang Moo Kang, Kyung Sub Kim, Chul Ho Jang, Ho Kyoung Hwang, Jeong-Rim Lee. Correlation of Intraoperative End-Tidal Carbon Dioxide Concentration on Postoperative Hospital Stay in Patients Undergoing Pylorus-Preserving Pancreaticoduodenectomy. *World J Surg* 2021; 45:1860-7.

71. Hye Bin Kim, Tae Dong Kweon, Chul Ho Chang, Ji Young Kim, Kyung Sub Kim, Ji Young Kim. Equal Ratio Ventilation Reduces Blood Loss During Posterior Lumbar Interbody Fusion Surgery. *SPINE* 2021; 46, E852–8.
72. Uiemo Je, Byeong-Ju Kwon, Hee-Kyo Jeong, Chul Ho Chang, Hankil Lee, and Sung-Uk Kuh. A Micro-Costing Analysis of Flexible Bronchoscopic Intubation in a Korean Tertiary Hospital. *J Health Tech Assess* 2022;10: 51-7.