

Editors-in-Chief Statement Regarding Published Clinical Trials Conducted without IRB Approval by Joachim Boldt

March 4, 2011

To our readers:

Landesärztekammer Rheinland-Pfalz (“LÄK-RLP”), the State Medical Association of Rheinland-Pfalz, Germany serves as the Institutional Review Board (IRB) for clinical research at Klinikum Ludwigshafen, where Dr. Joachim Boldt’s recent research was conducted. On February 25, 2011, LÄK-RLP provided the involved journals with the results of their evaluation of the status of IRB approval for research conducted by Dr. Boldt dating back to 1999. LÄK-RLP determined, to the best of its ability, the status of IRB approval for 102 articles published by Dr. Boldt.

Table 1 lists 88 articles for which LÄK-RLP was unable to verify IRB approval. Table 2 lists 12 articles for which LÄK-RLP was able to verify IRB approval. Table 3 lists 2 articles for which LÄK-RLP determined that IRB approval was not necessary.

The undersigned Editors-in-Chief of medical journals affected by these findings will retract the articles in our respective journals that are listed in table 1. Formal retraction notices will appear in each journal.

The retraction of the articles in Table 1 for lack of IRB approval means that the research was unethical, and that IRB approval for the research was misrepresented in the published article. It does not mean that the research results *per se* are fraudulent. Klinikum Ludwigshafen has commissioned an investigating committee to systematically assess the veracity of the findings presented in Dr. Boldt’s articles against patient and laboratory records. We will communicate to our readers any finding of data fabrication, falsification, or misrepresentation identified by the investigating committee at Klinikum Ludwigshafen.

We, the undersigned Editors-in-Chief, on behalf of our Editorial Boards, affiliated societies, and publishers, extend our appreciation to LÄK-RLP for their review of the status of IRB approval for Dr. Boldt’s research and to the investigating committee at Klinikum Ludwigshafen for their ongoing review of his research findings.

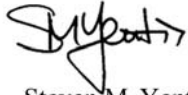
Amendments:

1. March 4, 2011: LÄK-RLP has verified IRB approval for Boldt J, Schöllhorn T, Münchbach J, Pabsdorf M. A total balanced volume replacement strategy using a new balanced hydroxyethyl starch preparation (6% HES 130/0.42) in patients undergoing major abdominal surgery. *Eur J Anaesthesiol.* 2007;24:267-75. This article was moved from table 1 (articles without documented IRB approval) to table 2 (articles with documented IRB approval).

On behalf of our respective journals,



Lars S. Rasmussen
Editor-in-Chief, *Acta Anaesthesiologica Scandinavica*



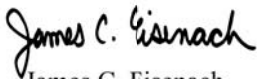
Steven M. Yentis
Editor-in-Chief, *Anaesthesia*



Hugo Van Aken
On behalf of the Editorial Board, *Anästhesiologie Intensivmedizin Notfallmedizin Schmerztherapie*



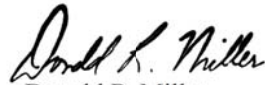
Steven L. Shafer
Editor-in-Chief, *Anesthesia & Analgesia*



James C. Eisenach
Editor-in-Chief, *Anesthesiology*



Charles S. Reilly
Editor-in-Chief, *British Journal of Anaesthesia*



Donald R. Miller
Editor-in-Chief, *Canadian Journal of Anesthesia/Journal canadien d'anesthésie*




Joseph E. Parrillo
Editor-in-Chief, *Critical Care Medicine*



Bernd Zwissler
On behalf of the Editorial Board and his CoEditor-in-Chief, Rolf Rossaint, *Der Anästhesist*



Martin R. Tramèr
Editor-in-Chief, *European Journal of Anaesthesiology*



Massimo Antonelli
Editor-in-Chief, *Intensive Care Medicine*



Joel A. Kaplan
Editor-in-Chief, *Journal of Cardiothoracic and Vascular Anesthesia*



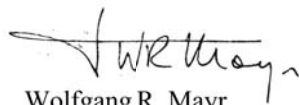
Jörg Wiltfang
Editor-in-Chief, *Journal of Cranio-Maxillo-Facial Surgery*



George B. Stefano
Editor-in-Chief, *Medical Science Monitor*



Davide Chiumello
Editor-in-Chief, *Minerva Anestesiologica*



Wolfgang R. Mayr
Editor-in-Chief, *Vox Sanguinis*

Table 1: Articles without evidence of IRB approval as determined by LÄK-RLP

Acta Anaesthesiologica Scandinavica

Mengistu AM, Mayer J, Boldt J, Röhm KD. Whole-blood aggregometry: are there any limits with regard to platelet counts? *Acta Anaesthesiol Scand.* 2009;53:72-6

Röhm KD, Piper SN, Suttner S, Schuler S, Boldt J. Early recovery, cognitive function and costs of a desflurane inhalational vs. a total intravenous anaesthesia regimen in long-term surgery. *Acta Anaesthesiol Scand.* 2006;50:14-8

Boldt J, Kumle B, Suttner S, Haisch G. Point-of-care (POC) testing of lactate in the intensive care patient. Accuracy, reliability, and costs of different measurement systems. *Acta Anaesthesiol Scand.* 2001;45:194-9

Anaesthesia

Röhm KD, Riechmann J, Boldt J, Schuler S, Suttner SW, Piper SN. Physostigmine for the prevention of postanaesthetic shivering following general anaesthesia - a placebo-controlled comparison with nefopam. *Anaesthesia.* 2005;60:433-8

Piper SN, Röhm KD, Suttner SW, Maleck WH, Kranke P, Boldt J. A comparison of nefopam and clonidine for the prevention of postanaesthetic shivering: a comparative, double-blind and placebo-controlled dose-ranging study. *Anaesthesia.* 2004;59:559-64

Roehm KD, Piper SN, Maleck WH, Boldt J. Prevention of propofol-induced injection pain by remifentanyl: a placebo-controlled comparison with lidocaine. *Anaesthesia.* 2003;58:165-70

Piper SN, Kumle B, Maleck WH, Suttner SW, Fent MT, Boldt J. Effects of postoperative sedation with propofol and midazolam on pancreatic function assessed by pancreatitis-associated protein. *Anaesthesia.* 2001;56:836-40

Piper SN, Suttner SW, Schmidt CC, Kumle B, Maleck WH, Boldt J. Acute phase response to nitroprusside-induced controlled hypotension in patients undergoing radical prostatectomy. *Anaesthesia.* 2000;55:131-6

Piper SN, Suttner SW, Schmidt CC, Maleck WH, Kumle B, Boldt J. Nefopam and clonidine in the prevention of postanaesthetic shivering. *Anaesthesia.* 1999;54:695-9

Anästhesiologie Intensivmedizin Notfallmedizin Schmerztherapie

Triem JG, Röhm KD, Boldt J, Piper SN. [Comparison of a propofol-based anaesthesia regimen using optimized-target-controlled-infusion (OTCI) and manually-controlled infusion (MCI) technique]. *Anesthesiol Intensivmed Notfallmed Schmerzther.* 2006;41:150-5

Piper SN, Triem JG, Röhm KD, Maleck WH, Schöllhorn TA, Boldt J. ProSeal-laryngeal mask versus endotracheal intubation in patients undergoing gynaecologic laparoscopy]. *Anesthesiol Intensivmed Notfallmed Schmerzther.* 2004;39:132-7

Piper SN, Haisch G, Kumle B, Walz GA, Breining T, Mattinger P, Boldt J. [Effects of esmolol- and sodium nitroprusside-induced controlled hypotension on hepatocellular integrity in patients undergoing endonasal sinus surgery]. *Anesthesiol Intensivmed Notfallmed Schmerzther.* 2003;38:781-6

Röhm KD, Piper SN, Schöllhorn TA, Suttner SW, Maleck WH, Boldt J. [Injection pain secondary to propofol-MCT/LCT and propofol-LCT--comparison of prophylaxis with lidocaine]. *Anesthesiol Intensivmed Notfallmed Schmerzther.* 2003;38:643-7

Piper SN, Kumle B, Röhm KD, Suttner SW, Lang J, Blome M, Boldt J. [Influence of cardiopulmonary bypass (CPB) on the natriuretic peptides ANP and BNP. A comparison between long and short duration of CPB and off pump surgery]. *Anesthesiol Intensivmed Notfallmed Schmerzther.* 2003;38:463-9

Piper SN, Röhm KD, Papsdorf M, Maleck WH, Mattinger P, Boldt J. [Dolasetron reduces pain on injection of propofol]. *Anesthesiol Intensivmed Notfallmed Schmerzther.* 2002;37:528-31

Anesthesia & Analgesia

Riesmeier A, Schellhaass A, Boldt J, Suttner S. Crystalloid/colloid versus crystalloid intravascular volume administration before spinal anaesthesia in elderly patients: the influence on cardiac output and stroke volume. *Anesth Analg.* 2009;108:650-4

- Boldt J, Brosch Ch, Röhm K, Lehmann A, Mengistu A, Suttner S. Is albumin administration in hypoalbuminemic elderly cardiac surgery patients of benefit with regard to inflammation, endothelial activation, and long-term kidney function? *Anesth Analg.* 2008;107:1496-503
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- Mayer J, Boldt J, Wolf MW, Lang J, Suttner S. Cardiac output derived from arterial pressure waveform analysis in patients undergoing cardiac surgery: validity of a second generation device. *Anesth Analg.* 2008;106:867-72
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- Mengistu AM, Röhm KD, Boldt J, Mayer J, Suttner SW, Piper SN. The influence of aprotinin and tranexamic acid on platelet function and postoperative blood loss in cardiac surgery. *Anesth Analg.* 2008;107:391-7
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- Boldt J, Wolf M, Mengistu A. A new plasma-adapted hydroxyethylstarch preparation: in vitro coagulation studies using thrombelastography and whole blood aggregometry. *Anesth Analg.* 2007;104:425-30
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- Mayer J, Boldt J, Schellhaass A, Hiller B, Suttner SW. Bispectral index-guided general anesthesia in combination with thoracic epidural analgesia reduces recovery time in fast-track colon surgery. *Anesth Analg.* 2007;104:1145-9
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- Boldt J, Schöhlhorn T, Mayer J, Piper S, Suttner S. The value of an albumin-based intravascular volume replacement strategy in elderly patients undergoing major abdominal surgery. *Anesth Analg.* 2006;103:191-9
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- Mayer J, Boldt J, Röhm KD, Scheuermann K, Suttner SW. Desflurane anesthesia after sevoflurane inhaled induction reduces severity of emergence agitation in children undergoing minor ear-nose-throat surgery compared with sevoflurane induction and maintenance. *Anesth Analg.* 2006;102:400-4
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- Suttner S, Lang K, Piper SN, Schultz H, Röhm KD, Boldt J. Continuous intra- and postoperative thoracic epidural analgesia attenuates brain natriuretic peptide release after major abdominal surgery. *Anesth Analg.* 2005;101:896-903
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- Boldt J, Brosch C, Lehmann A, Suttner S, Isgro F. The prophylactic use of the beta-blocker esmolol in combination with phosphodiesterase III inhibitor enoximone in elderly cardiac surgery patients. *Anesth Analg.* 2004;99:1009-17
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- Suttner S, Piper SN, Kumle B, Lang K, Röhm KD, Isgro F, Boldt J. The influence of allogeneic red blood cell transfusion compared with 100% oxygen ventilation on systemic oxygen transport and skeletal muscle oxygen tension after cardiac surgery. *Anesth Analg.* 2004;99:2-11
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- Boldt J, Brenner T, Lang J, Kumle B, Isgro F. Kidney-specific proteins in elderly patients undergoing cardiac surgery with cardiopulmonary bypass. *Anesth Analg.* 2003;97:1582-9
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- Lehmann A, Karzau J, Boldt J, Thaler E, Lang J, Isgro F. Bispectral index-guided anesthesia in patients undergoing aortocoronary bypass grafting. *Anesth Analg.* 2003;96:336-43
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- Boldt J, Haisch G, Suttner S, Kumle B, Schellhase F. Are lactated Ringer's solution and normal saline solution equal with regard to coagulation? *Anesth Analg.* 2002;94:378-84
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- Lehmann A, Boldt J, Thaler E, Piper S, Weisse U. Bispectral index in patients with target-controlled or manually-controlled infusion of propofol. *Anesth Analg.* 2002;95:639-44
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- Piper SN, Röhm KD, Maleck WH, Fent MT, Suttner SW, Boldt J. Dolasetron for preventing postanesthetic shivering. *Anesth Analg.* 2002;94:106-11
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- Lang K, Boldt J, Suttner S, Haisch G. Colloids versus crystalloids and tissue oxygen tension in patients undergoing major abdominal surgery. *Anesth Analg.* 2001;93:405-9
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- Haisch G, Boldt J, Krebs C, Kumle B, Suttner S, Schulz A. The influence of intravascular volume therapy with a new hydroxyethyl starch preparation (6% HES 130/0.4) on coagulation in patients undergoing major abdominal surgery. *Anesth Analg.* 2001;92:565-71
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- Piper SN, Maleck WH, Boldt J, Suttner SW, Schmidt CC, Reich DG. A comparison of urapidil, clonidine, meperidine and placebo in preventing postanesthetic shivering. *Anesth Analg.* 2000;90:954-7
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- Suttner SW, Schmidt CC, Boldt J, Hüttner I, Kumle B, Piper SN. Low-flow desflurane and sevoflurane anesthesia minimally affect hepatic integrity and function in elderly patients. *Anesth Analg.* 2000;91:206-12
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- Suttner S, Boldt J, Schmidt C, Piper S, Kumle B. Cost analysis of target-controlled infusion-based anesthesia compared with standard anesthesia regimens. *Anesth Analg.* 1999;88:77-82
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- Suttner SW, Boldt J, Schmidt CC, Piper SN, Schuster P, Kumle B. The effects of sodium nitroprusside-induced hypotension on splanchnic perfusion and hepatocellular integrity. *Anesth Analg.* 1999;89:1371-7

Anesthesiology

Suttner SW, Lang K, Boldt J, Kumle B, Maleck WH, Piper SN. The influence of hyperoxic ventilation during sodium nitroprusside-induced hypotension on skeletal muscle tissue oxygen tension. *Anesthesiology*. 2002;96:1103-8

Annals of Thoracic Surgery

Kumle B, Boldt J, Suttner SW, Piper SN, Lehmann A, Blome M. Influence of prolonged cardiopulmonary bypass times on splanchnic perfusion and markers of splanchnic organ function. *Ann Thorac Surg*. 2003;75:1558-64

Boldt J, Brosch C, Lehmann A, Haisch G, Lang J, Isgro F. Prophylactic use of pentoxifylline on inflammation in elderly cardiac surgery patients. *Ann Thorac Surg*. 2001;71:1524-9

British Journal of Anaesthesia

Mayer J, Boldt J, Beschmann R, Stephan A, Suttner S. Uncalibrated arterial pressure waveform analysis for less-invasive cardiac output determination in obese patients undergoing cardiac surgery. *Br J Anaesth*. 2009;103:185-90

Suttner S, Boldt J, Mengistu A, Lang K, Mayer J. Influence of continuous perioperative beta-blockade in combination with phosphodiesterase inhibition on haemodynamics and myocardial ischaemia in high-risk vascular surgery patients. *Br J Anaesth*. 2009;102:597-607

Boldt J, Suttner S, Brosch C, Lehmann A, Mengistu A. Influence on coagulation of a potato-derived hydroxethylstarch (HES 130/0.42) and a maize-derived hydroxethylstarch (HES 130/0.4) in patients undergoing cardiac surgery. *Br J Anaesth*. 2009;102:191-7

Boldt J, Brosch Ch, Röhm K, Papsdorf M, Mengistu A. Comparison of the effects of gelatin and a modern hydroxyethyl starch solution on renal function and inflammatory response in elderly cardiac surgery patients. *Br J Anaesth*. 2008;100:457-64

Mayer J, Boldt J, Schöllhorn T, Röhm KD, Mengistu AM, Suttner S. Semi-invasive monitoring of cardiac output by a new device using arterial pressure waveform analysis: a comparison with intermittent pulmonary artery thermodilution in patients undergoing cardiac surgery. *Br J Anaesth*. 2007;98:176-82

Piper SN, Röhm KD, Boldt J, Faust KL, Maleck WH, Kranke P, Suttner SW. Inspired oxygen fraction of 0.8 compared with 0.4 does not further reduce postoperative nausea and vomiting in dolasetron-treated patients undergoing laparoscopic cholecystectomy. *Br J Anaesth*. 2006;97:647-53

Boldt J, Haisch G, Suttner S, Kumle B, Schellhaass A. Effects of a new modified, balanced hydroxyethyl starch preparation (Hextend) on measures of coagulation. *Br J Anaesth*. 2002;89:722-8

Boldt J, Hüttner I, Suttner S, Kumle B, Piper SN, Berchthold G. Changes of haemostasis in patients undergoing major abdominal surgery--is there a difference between elderly and younger patients? *Br J Anaesth*. 2001;87:435-40

Suttner SW, Piper SN, Lang K, Hüttner I, Kumle B, Boldt J. Cerebral effects and blood sparing efficiency of sodium nitroprusside-induced hypotension alone and in combination with acute normovolaemic haemodilution. *Br J Anaesth*. 2001;87:699-705

Hüttner I, Boldt J, Haisch G, Suttner S, Kumle B, Schulz H. Influence of different colloids on molecular markers of haemostasis and platelet function in patients undergoing major abdominal surgery. *Br J Anaesth*. 2000;85:417-23

Boldt J, Weber A, Mailer K, Papsdorf M, Schuster P. Acute normovolaemic haemodilution vs controlled hypotension for reducing the use of allogeneic blood in patients undergoing radical prostatectomy. *Br J Anaesth*. 1999;82:170-4

Canadian Journal of Anesthesia/Journal canadien d'anesthésie

Piper SN, Kumle B, Maleck WH, Kiessling AH, Lehmann A, Röhm KD, Suttner SW, Boldt J. Diltiazem may preserve renal tubular integrity after cardiac surgery. *Can J Anesth*. 2003;50:285-92

Lang K, Suttner S, Boldt J, Kumle B, Nagel D. Volume replacement with HES 130/0.4 may reduce the inflammatory response in patients undergoing major abdominal surgery. *Can J Anesth*. 2003;50:1009-16

Piper SN, Suttner SW, Röhm KD, Maleck WH, Larbig E, Boldt J. Dolasetron, but not metoclopramide prevents nausea and vomiting in patients undergoing laparoscopic cholecystectomy. *Can J Anesth.* 2002;49:1021-8

Piper SN, Fent MT, Röhm KD, Maleck WH, Suttner SW, Boldt J. Urapidil does not prevent postanesthetic shivering: a dose-ranging study. *Can J Anesth.* 2001;48:742-7

Piper SN, Boldt J, Schmidt CC, Maleck WH, Brosch C, Kumle B. Hemodynamics, intramucosal pH and regulators of circulation during perioperative epidural analgesia. *Can J Anesth.* 2000;47:631-7

Critical Care Medicine

Boldt J, Brosch C, Ducke M, Papsdorf M, Lehmann A. Influence of volume therapy with a modern hydroxyethylstarch preparation on kidney function in cardiac surgery patients with compromised renal function: a comparison with human albumin. *Crit Care Med.* 2007;35:2740-6

Boldt J, Brosch C, Piper SN, Suttner S, Lehmann A, Werling C. Influence of prophylactic use of pentoxifylline on postoperative organ function in elderly cardiac surgery patients. *Crit Care Med.* 2001;29:952-8

Der Anästhesist

Triem JG, Röhm KD, Boldt J, Piper SN. [Propofol administration systems. Handling, hemodynamics and propofol consumption]. *Anaesthesist.* 2009;58:231-4, 236-9

Piper SN, Triem JG, Röhm KD, Kranke P, Maleck WH, Boldt J. [Prevention of post-operative nausea and vomiting. Randomised comparison of dolasetron versus dolasetron plus dexamethasone]. *Anaesthesist.* 2003;52:120-6

European Journal of Anaesthesiology

Boldt J, Mengistu A. Balanced hydroxyethylstarch preparations: are they all the same? In-vitro thrombelastometry and whole blood aggregometry. *Eur J Anaesthesiol.* 2009;26:1020-5

Mayer J, Boldt J, Triem JG, Schellhaass A, Mengistu AM, Suttner S. Individual titration of propofol plasma target improves anaesthetic stability in patients undergoing major abdominal surgery: a comparison with manually controlled infusion. *Eur J Anaesthesiol.* 2008;25:741-7

Piper SN, Röhm KD, Boldt J, Odermatt B, Maleck WH, Suttner SW. Hepatocellular integrity in patients requiring parenteral nutrition: comparison of structured MCT/LCT vs. a standard MCT/LCT emulsion and a LCT emulsion. *Eur J Anaesthesiol.* 2008;25:557-65

Mengistu AM, Wolf MW, Boldt J, Röhm KD, Suttner SW, Piper SN. Influence of controlled hypotension using esmolol and sodium nitroprusside on natriuretic peptides in patients undergoing endonasal sinus surgery. *Eur J Anaesthesiol.* 2007;24:529-34

Röhm KD, Suttner SW, Boldt J, Schöllhorn TA, Piper SN. Insignificant effect of desflurane-fentanyl-thiopental on hepatocellular integrity--a comparison with total intravenous anaesthesia using propofol-remifentanyl. *Eur J Anaesthesiol.* 2005;22:209-14

Röhm KD, Schöllhorn TA, Gwosdek MJ, Piper SN, Maleck WH, Boldt J. Do we necessarily need local anaesthetics for venous cannulation? A comparison of different cannula sizes. *Eur J Anaesthesiol.* 2004;21:214-6

Piper SN, Suttner SW, Maleck WH, Kumle B, Haisch G, Boldt J. Effects of sodium nitroprusside-induced controlled hypotension on pancreatic function assessed by pancreatitis-associated protein in patients undergoing radical prostatectomy. *Eur J Anaesthesiol.* 2002;19:609-13

Piper SN, Triem JG, Maleck WH, Fent MT, Hüttner I, Boldt J. Placebo-controlled comparison of dolasetron and metoclopramide in preventing postoperative nausea and vomiting in patients undergoing hysterectomy. *Eur J Anaesthesiol.* 2001;18:251-6

Intensive Care Medicine

Boldt J, Suttner S, Brosch C, Lehmann A, Röhm K, Mengistu A. The influence of a balanced volume replacement concept on inflammation, endothelial activation, and kidney integrity in elderly cardiac surgery patients. *Intensive Care Med.* 2009;35:462-70

Suttner S, Schöllhorn T, Boldt J, Mayer J, Röhm KD, Lang K, Piper SN. Noninvasive assessment of cardiac output using thoracic electrical bioimpedance in hemodynamically stable and unstable patients after cardiac surgery: a comparison with pulmonary artery thermodilution. *Intensive Care Med.* 2006;32:2053-8

Boldt J, Ducke M, Kumle B, Papsdorf M, Zurmeyer EL. Influence of different volume replacement strategies on inflammation and endothelial activation in the elderly undergoing major abdominal surgery. *Intensive Care Med.* 2004;30:416-22

Boldt J, Brenner T, Lehmann A, Lang J, Kumle B, Werling C. Influence of two different volume replacement regimens on renal function in elderly patients undergoing cardiac surgery: comparison of a new starch preparation with gelatin. *Intensive Care Med.* 2003;29:763-9

Boldt J, Brosch C, Suttner S, Piper SN, Lehmann A, Werling C. Prophylactic use of the phosphodiesterase III inhibitor enoximone in elderly cardiac surgery patients: effect on hemodynamics, inflammation, and markers of organ function. *Intensive Care Med.* 2002;28:1462-9

Journal of Cardiothoracic and Vascular Anesthesia

Mengistu AM, Mayer J, Boldt J, Röhm KD, Suttner SW. Usefulness of monitoring platelet function by multiple electrode aggregometry in primary coronary artery bypass surgery. *J Cardiothorac Vasc Anesth.* 2011;25:42-7

Boldt J, Mayer J, Brosch C, Lehmann A, Mengistu A. Volume replacement with a balanced hydroxyethyl starch (HES) preparation in cardiac surgery patients. *J Cardiothorac Vasc Anesth.* 2010;24:399-407

Boldt J, Mengistu A. A new plasma-adapted hydroxyethyl starch preparation: in vitro coagulation studies. *J Cardiothorac Vasc Anesth.* 2010;24:394-8

Mengistu AM, Wolf MW, Boldt J, Röhm KD, Lang J, Piper SN. Evaluation of a new platelet function analyzer in cardiac surgery: a comparison of modified thromboelastography and whole-blood aggregometry. *J Cardiothorac Vasc Anesth.* 2008;22:40-6

Lehmann A, Boldt J, Römpert R, Thaler E, Kumle B, Weisse U. Target-controlled infusion or manually controlled infusion of propofol in high-risk patients with severely reduced left ventricular function. *J Cardiothorac Vasc Anesth.* 2001;15:445-50

Haisch G, Boldt J, Krebs C, Suttner S, Lehmann A, Isgro F. Influence of a new hydroxyethylstarch preparation (HES 130/0.4) on coagulation in cardiac surgical patients. *J Cardiothorac Vasc Anesth.* 2001;15:316-21

Heck M, Kumle B, Boldt J, Lang J, Lehmann A, Saggau W. Electroencephalogram bispectral index predicts hemodynamic and arousal reactions during induction of anesthesia in patients undergoing cardiac surgery. *J Cardiothorac Vasc Anesth.* 2000;14:693-7

Lehmann A, Zeitler C, Thaler E, Isgro F, Boldt J. Comparison of two different anesthesia regimens in patients undergoing aortocoronary bypass grafting surgery: sufentanil-midazolam versus remifentanil-propofol. *J Cardiothorac Vasc Anesth.* 2000;14:416-20

Piper SN, Boldt J, Schmidt CC, Brosch C, Maleck WH, Berchtold C. Influence of dexmedetomidine on hemodynamics, intramucosal pH, and regulators of the macrocirculation and microcirculation in patients undergoing abdominal aortic surgery. *J Cardiothorac Vasc Anesth.* 2000;14:281-7

Journal of Cranio-Maxillo-Facial Surgery

Piper SN, Röhm K, Boldt J, Kranke P, Maleck W, Seifert R, Suttner S. Postoperative nausea and vomiting after surgery for prognathism: not only a question of patients' comfort. A placebo-controlled comparison of dolasetron and droperidol. *J Craniomaxillofac Surg.* 2008;36:173-9

Medical Science Monitor

Piper SN, Beschmann RB, Mengistu A, Maleck WH, Boldt J, Röhm KD. Postoperative analgo-sedation with S(+)-ketamine decreases the incidences of postanesthetic shivering and nausea and vomiting after cardiac surgery. *Med Sci Monit.* 2008;14:PI59-65

Röhm KD, Riechmann J, Boldt J, Suttner SW, Piper SN. Total intravenous anesthesia with propofol and remifentanil is associated with a nearly twofold higher incidence in postanesthetic shivering than desflurane-fentanyl anesthesia. *Med Sci Monit.* 2006;12:CR452-6

Minerva Anesthesiologica

Piper SN, Beschmann R, Mengistu A, Kalenka A, Maleck WH, Boldt J, Röhm KD. Assessment of recovery, dreaming, hemodynamics, and satisfaction in postcardiac surgery patients receiving supplementary propofol sedation with S(+)-ketamine. *Minerva Anesthesiol.* 2009;75:363-73

The Thoracic and Cardiovascular Surgeon

Piper SN, Kiessling AH, Suttner SW, Ducke M, Boldt J, Röhm KD. Prevention of atrial fibrillation after coronary artery bypass graft surgery using a potassium-magnesium-aspartate solution (Inzolen). *Thorac Cardiovasc Surg.* 2007;55:418-23

Vox Sanguinis

Boldt J, Mengistu A, Seyfert UT, Vogt A, Hellstern P. The impact of a medium molecular weight, low molar substitution hydroxyethyl starch dissolved in a physiologically balanced electrolyte solution on blood coagulation and platelet function in vitro. *Vox Sang.* 2007;93:139-44

Table 2: Articles with IRB approval verified by LÄK-RLP

1. Royse CF, Newman S, Chung F, Stygall J, McKay RE, Boldt J, Servin FS, Hurtado I, Hannallah R, Yu B, Wilkinson DJ. Development and feasibility of a scale to assess postoperative recovery: the post-operative quality recovery scale. *Anesthesiology*. 2010;113:892-905

2. Mayer J, Boldt J, Mengistu AM, Röhm KD, Suttner S. Goal-directed intraoperative therapy based on autocalibrated arterial pressure waveform analysis reduces hospital stay in high-risk surgical patients: a randomized, controlled trial. *Crit Care*. 2010;14:R18

3. Piper SN, Schade I, Beschmann RB, Maleck WH, Boldt J, Röhm KD. Hepatocellular integrity after parenteral nutrition: comparison of a fish-oil-containing lipid emulsion with an olive-soybean oil-based lipid emulsion. *Eur J Anaesthesiol*. 2009;26:1076-82

4. Röhm KD, Mengistu A, Boldt J, Mayer J, Beck G, Piper SN. Renal integrity in sevoflurane sedation in the intensive care unit with the anesthetic-conserving device: a comparison with intravenous propofol sedation. *Anesth Analg*. 2009;108:1848-54

5. Suttner S, Boldt J, Lang K, Röhm KD, Piper SN, Mayer J. Association of N-terminal pro-brain natriuretic peptide and cardiac troponin T with in-hospital cardiac events in elderly patients undergoing coronary artery surgery. *Eur J Anaesthesiol*. 2008;25:834-41.

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Table 3: Articles that do not require IRB approval as determined by LÄK-RLP

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