Appendix Table 7. **Abstracted Data for Eligible Systematic Reviews and Meta-Analyses, Continued***

Author, Year (Reference)	Analysis						Results
	Fixed- or Random-Effects Models	Heterogeneity Assessed	Sensitivity Analysis	Subgroup Analysis	Publication Bias Assessed	Study Quality	
Rodgers et al., 2000 (32)	Fixed	Yes	Yes	Yes	Yes	Good	Regional anesthesia, with or without general anesthesia, was associated with lower mortality overall (OR, 0.70 [95% CI, 0.51–0.97]) and orthopedic surgery (results depicted in Forest plot; OR and CI not stated) but not for other surgical subgroups. Regional anesthesia vs. general anesthesia alone was also associated with reduced mortality (OR, 0.64 [CI, 0.47–0.87]; n = 5202). Regional anesthesia was associated with less pneumonia (OR, 0.61 [CI, 0.48–0.76]), respiratory depression (OR, 0.41 [CI, 0.23–0.73]), deep venous thrombosis (OR, 0.56 [CI, 0.43–0.72]), and less need for transfusion (OR, 0.50 [CI, 0.39–0.66]).
Urwin et al., 2000 (33)	Fixed or random per heterogeneity ($P < 0.1$)	Yes	No	Yes	No data	Good	Regional, compared with general, anesthesia was associated with lower 30-d mortality (OR, 0.66 [CI, 0.47–0.96]) and deep venous thrombosis (OR, 0.41 [CI, 0.23–0.72]) but not lower 3-, 6-, or 12-mo mortality, risk for pneumonia (OR, 0.92 [CI, 0.53–1.59]), or several other medical complications, including all pulmonary embolisms. Regional anesthesia was associated with significantly fewer fatal pulmonary embolisms (OR and CI not stated).
Ballantyne et al., 1998 (34)	Random	Yes	Yes	Yes	No data	Fair	Epidural opioid, compared with systemic opioid, was associated with less atelectasis (OR, 0.53 [CI, 0.33–0.85]) but not "pulmonary infection" (OR, 0.53 [CI, 0.18–1.53]) or overall PPCs (OR, 0.51 [CI, 0.20–1.33]). Epidural local anesthetic, compared with systemic opioid, was associated with less "pulmonary infection" (OR, 0.36 [CI, 0.21–0.65]) and overall PPCs (OR, 0.58 [CI, 0.42–0.80]) but not atelectasis (OR, 0.74 [CI, 0.50–1.11]). There were nonsignificant trends toward fewer PPCs with epidural opioid + anesthetic compared with systemic opioid and with intercostal nerve block compared with systemic opioid.
Walder et al., 2001 (35)	Fixed or random per heterogeneity ($P < 0.1$)	Yes	No	Yes	No data	Good	In a subgroup analysis of 2 morphine trials reporting PPCs (n = 147), IV PCA was associated with lower risk (OR, 0.93 [CI, 0.86–0.99]). In a separate trial of 60 patients, there was no benefit regarding "chest infection" (no data given). Among 689 patients, respiratory depression was not more frequent with PCA (OR, 1.08 [CI, 0.44–2.68]).
Downs et al., 1996 (36)	Quantitative pooling not done				No data	Good	LC, compared with OC, was associated with less compromise and faster recovery of postoperative pulmonary function. In 1 trial of 40 patients with blinded assessment of postoperative chest radiography, LC was associated with less atelectasis (frequency, 29% vs. 63%; $P < 0.05$; severity, chi-square for trend, $P < 0.05$).
Abraham et al., 2004 (37)	Fixed or random per heterogeneity assessment	Yes	No	No	No data	Good	LCR, compared with OCR, for cancer was associated with no mortality benefit, a trend toward fewer respiratory complications (OR, 0.65 [CI, 0.28–1.49]), fewer overall complications (OR, 0.62 [CI, 0.38–1.03])—primarily due to fewer wound complications, primarily wound infection (OR, 0.47 [CI, 0.28–0.80])—faster recovery of respiratory function (PEF, 44% faster [CI, 32%–67%]; FEV_1, 36% faster [CI, –33% to 50%]; FVC, 40% faster [CI, 0%–50%]) and shorter hospital stay (21% shorter [CI, 14%–38%]).

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Appendix Table 7—Continued

Author, Year (Reference)	Analysis						Results
	Fixed- or Random-Effects Models	Heterogeneity Assessed	Sensitivity Analysis	Subgroup Analysis	Publication Bias Assessed	Study Quality	
Cheatham et al., 1995 (38)	Quantitative pooling not done				No	Poor	The meta-analysis was good quality up to quantitative pooling, which pooled RCTs, uncontrolled studies, and case–control studies, thus rendering the results unusable. For the overall group of 26 studies (which appears to comprise 15 RCTs, 3 nonrandomized trials, and 8 case–control studies [n = 3964]), selective decompression was associated with less pneumonia (RR, 0.49; $P < 0.0001$) and atelectasis (RR, 0.46; $P = 0.001$) and shorter time to oral intake (3.5 d vs. 4.6 d; $P = 0.04$). There was no difference in aspiration rates (RR, 0.61; $P = 0.88$), nausea (RR, 0.98; $P = 0.31$), vomiting (RR, 1.19; $P = 0.11$), or abdominal distension (RR, 0.98; $P = 0.36$). For 20 higher-quality studies (15 RCTs plus 5 case–control studies [n = 2915]), selective nasogastric decompression was also associated with less pneumonia (RR, 0.59; $P = 0.01$) and atelectasis (RR, 0.52; $P = 0.002$), a trend toward shorter time to oral intake (3.5 d vs. 4.5 d; $P = 0.07$), no difference in aspiration (RR, 0.94; $P = 0.91$) but more vomiting (RR, 1.45; $P = 0.005$) and abdominal distension (RR, 1.34; $P = 0.02$). Insufficient data were reported for calculating pooled effects for RCTs only and CIs.
Nelson et al., 2005 (39)	Fixed or random per heterogeneity assessment	Yes	Yes	Yes	No	Good	Selective, compared with routine, nasogastric decompression was associated with a trend toward fewer PPCs (reported as relative benefit increase of 1.35 [CI, 0.98–1.86] converted to RR reduction of 0.74 [CI, 0.54–1.02]; $P = 0.07$). Data were insufficient or too heterogeneous to pool for nausea, vomiting, aspiration, or abdominal distension, and 15 of the 28 included trials were also included in the Cheatham et al. review (38).
Thomas and McIntosh, 1994 (40)	No data	Yes	No	Yes	No	Poor	Across all lung expansion modalities, there was a trend toward fewer PPCs compared with controls (OR, 0.85 [CI, 0.59–1.2]), but there was unexplained significant heterogeneity. IS, compared with control (2 studies [n = 212]) was associated with fewer PPCs (OR, 0.44 [CI, 0.18–0.99]) with no significant heterogeneity. DBEs, compared with control (4 studies [n = 564]), were also associated with fewer PPCs (OR, 0.43 [CI, 0.27–0.63]), but the heterogeneity test was significant. Among studies comparing different modalities, none (IS, DBEs, IPPB) was clearly superior.
Overend et al., 2001 (41)	Quantitative pooling not done				No	Poor	The authors reported no raw data on rates of PPCs. In the only trial in the review that met our sample size inclusion criteria, DBEs and IPPB reportedly equally prevented PPCs compared with no lung expansion intervention.
Moore et al., 1992 (42)	Fixed	Yes	No	Yes	No	Poor	Infections were twice as frequent among patients receiving TPN compared with those receiving early enteral nutrition (35% vs. 16%; $P = 0.01$), even after excluding patients with catheter sepsis from analysis (29% vs. 16%; $P = 0.03$). Overall infections and pneumonia were significantly reduced in trauma patients, but power was very low for "nontrauma" (? elective surgery) patients for overall infections (4/28 vs. 3/32; $P = 0.70$) and pneumonia (3/28 vs. 1/32; $P = 0.33$).

* DBE = deep breathing exercise; IPPB = intermittent positive-pressure breathing; IS = incentive spirometry; IV = intravenous; LC = laparoscopic cholecystectomy; LCR = laparoscopic colorectal resection; OC = open cholecystectomy; OCR = open colorectal resection; OR = odds ratio; PCA = patient-controlled analgesia; PEF = peak expiratory flow; PPC = postoperative pulmonary complication; RCT = randomized, controlled trial; RR = relative risk; TPN = total parenteral nutrition.