

Appendix 2a: Studies on MBP and oral antibiotics vs. MBP and no oral antibiotics

Author, year, reference	Design, setting, population	Type of surgery	SSI /anastomotic leakage definition	Preoperative intravenous antibiotics and/or MBP	Intervention/oral antibiotics	Microbiological coverage of the antibiotics gram-negative+ anaerobic yes/no	Absorbable or non-absorbable	Results
Espin-Basany, 2005 (13)	RCT single centre	Elective colorectal surgery.	Modified CDC guidelines (Horan et al 1992) No definition for anastomotic leakage.	MBP (sodium phosphate) and IV cefoxitin.	A) Neomycin 1 g and metronidazole 1g in 3 dd on day before surgery. B) Neomycin 1g and metronidazole 1g 1 dd on day before surgery. C) No oral antibiotics.	Yes	Neomycin: non-absorbable Metronidazole: absorbable	A) 100 patients SSI: 7/100; 2/100 with anastomotic leakage B) 100 patients SSI: 8/100; 2/100 with anastomotic leakage C) 100 patients SSI: 6/100; 3/100 with anastomotic leakage
Horie, 2007 (15)	RCT single centre	Elective surgery for colorectal cancer.	“Wound infection was indicated by presence of pus or discharge resulting in a positive bacteriological culture.” No definition for anastomotic leakage.	MBP (polyethylene glycol) and 1 g cefotiam IV.	A) Kanamycin 1.5 g during 3 days before surgery. B) No oral antibiotics.	No Only gram-negative	Non- absorbable	A) 46 patients SSI: 10/46; 7/46 with anastomotic leakage B) 45 patients SSI: 5/45; 4/45 with anastomotic leakage
Ishida, 2001 (16)	RCT single centre	Elective colorectal surgery.	CDC guidelines “Anastomotic dehiscence was confirmed by clinical and/or radiographic examinations.”	MBP (polyethylene glycol) and IV cefotiam 1g before and after surgery.	A) Kanamycin 500g and erythromycin 400 mg in 2 dd on 2 days before surgery. B) No oral antibiotics.	Kanamycin: gram-negative Erythromycin: minimal anaerobic activity	Kanamycin: non-absorbable Erythromycin: absorbable	A) 72 patients SSI: 8/72 (11.1%); 1/72 with anastomotic leakage B) 71 patients SSI: 17/71 (23.9%); 2/71 with anastomotic leakage
Kobayashi, 2007 (18)	RCT, multicentre, adult patients (>20 years of age)	Elective surgery for colorectal cancer.	CDC guidelines	MBP (2 l polyethylene glycol) and 1 g cefmetazole IV (prolonged if necessary).	A) Kanamycin 1g and erythromycin 400 mg in 3 dd on day before surgery. B) No oral antibiotics.	Kanamycin: gram-negative Erythromycin: minimal anaerobic activity	Kanamycin: non-absorbable Erythromycin: absorbable	A) 242 patients, SSI: 17/242 (7.0%) B) 242 patients SSI: 26/242 (10.7%)

Lewis, 2002 (19)	RCT single centre	Elective colon surgery.	CDC guidelines No definition for anastomotic leakage.	MBP (sodium phosphate) and intravenous amikacin and metronidazole.	A) Neomycin 1g and metronidazole 1 g in 2dd on day before surgery. B) Placebo	Yes	Neomycin: non-absorbable Metronidazole: absorbable	A) 104 patients SSI: 5/104; 3/104 with anastomotic leakage B) 104 patients SSI: 17/104; 1/104 with anastomotic leakage
Oshima, 2013 (21)	RCT single centre	Open restorative proctocolectomy with IPAA for ulcerative colitis.	According to the Japanese National Nosocomial Infections Surveillance system	MBP (1.8 L of magnesium citrate solution) and IV prophylaxis with second generation cephalosporin for 24 hours.	A) Kanamycin 500mg and metronidazole 1 mg in 3 dd on day before surgery. B) No oral antibiotics.	Yes	Kanamycin: non-absorbable Metronidazole: absorbable	A) 97 patients SSI: 6/97 (6.2%) B) 98 patients, SSI : 22/98 (22.4%)
Roos, 2011 (24)	RCT multicentre	Elective resection of the digestive tract with a primary anastomosis, with or without a diverting ileostomy or closure of a temporary colostomy.	“The clinical signs of a wound infection are purulent discharge, redness, swelling, tenderness and local warmth. The clinical diagnosis is confirmed by the isolation of $\geq 3+$ or $\geq 10^5$ microorganisms and $\geq ++$ leukocytes in the purulent discharge of the wound.” Dehiscence of anastomosis identified by relaparotomy or computed tomography, and intra-abdominal abscess without obvious dehiscence.”	MBP for colonic surgery 1500 mg cefuroxime and 500 mg metronidazole for 24 hours, at 8-hour intervals, starting 30 minutes before surgery.	A) Polymyxin B sulphate 100 mg, tobramycin 80 mg and amphotericin B 500 mg, in 4 dd from two days before surgery. B) Placebo	No anaerobic activity	Non-absorbable	A) 143 patients SSI: 10/143 (7.0%); 9/143 with anastomotic leakage B) 146 patients SSI: 19/146 (13.0%); 22/146 with anastomotic leakage

Sadahiro, 2014 (25)	RCT adult patients	Elective surgery for colon cancer.	“Within 30 days. Incisional SSI; infection with a discharge or the presence of gross pus or purulent exudates in the surgical wound. Organ/space SSI: infection in the organs/tissues in the area in which surgery was performed.” No definition for anastomotic leakage.	MBP (10 ml of sodium picosulfate two days before surgery and 2 litres of polyethylene glycol–electrolyte sodium on day of surgery) IV prophylaxis with 1 g flomoxef.	A) Kanamycin 500 mg and metronidazole 500 mg in 3 dd on day of surgery. B) No oral antibiotics.	Yes	Kanamycin: non-absorbable Metronidazole: absorbable	A) 99 patients SSI: 10/99 (10.1%; 6 incisional and 4 organ/space), 1/99 with anastomotic leakage B) 95 patients SSI: 22/95 (23.2%; 17 incisional and 5 organ/space); 7/95 with anastomotic leakage
Stellato, 1990 (27)	RCT single centre	Elective colorectal surgery	“Evaluations of temperature and pulse, progress notes, results of postoperative culture.”	MBP (magnesium citrate and sodium biphosphate/sodium phosphate enema) and IV prophylaxis 2 g cefoxitin.	A) Neomycin 1 g and erythromycin 1 g in 3 dd on day before surgery. B) No oral antibiotics.	Neomycin: gram-negative Erythromycin: minimal anaerobic activity	Neomycin: non-absorbable Erythromycin: absorbable	A) 51 patients, SSI: 6/51 (11.8%); 1/51 with anastomotic leakage B) 51 patients SSI: 2/51 (3.9%); 3/51 with anastomotic leakage
Takesue, 2000 (28)	RCT multicentre	Elective colorectal surgery	“Presence of pus or discharge resulting in a positive bacteriological culture.” “Anastomotic dehiscence was confirmed by clinical and radiographic examination.”	MBP (polyethylene glycol) and 1 g cefmetazole IV	A) Kanamycin 500 mg and metronidazole 500 mg in 3 dd on day of surgery. B) No oral antibiotics.	Yes	Kanamycin: non-absorbable Metronidazole: absorbable	A) 38 patients SSI: 2/38 (5.3%); 2/38 with anastomotic leakage B) 45 patients SSI: 4/45 (8.8%); 2/45 with anastomotic leakage
Taylor, 1994 (29)	RCT multicentre, adult patients	Elective colorectal surgery	“Based on clinical criteria with microbiologic confirmation whenever it was available.”	MBP (sodium picosulfate) and piperacillin 4 g IV	A) Ciprofloxacin 500 mg in 2 dd on day before surgery. B) No oral antibiotics.	No anaerobic activity	Absorbable	A) 159 patients, SSI: 18/159 (11%) B) 168 patients SSI: 39/168 (23%) NB: patients with anastomotic leakage were withdrawn from the analysis

MBP: mechanical bowel preparation; dd: divided dose; SSI: surgical site infection; RCT: randomized controlled trial; CDC: Centers for Disease Control and Prevention; IV: intravenous; IPAA: ileal pouch-anal anastomosis.