

Supplementary Online Content

Bhangu A, Singh P, Lundy J, Bowley DM. Systemic review and meta-analysis of randomized clinical trials comparing primary vs delayed primary skin closure in contaminated and dirty abdominal incisions. *JAMA Surg*. Published online June 26, 2013. doi:10.1001/jamasurg.2013.2336

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This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1: Search strategies

Search terms used in the OVID SP version of MEDLINE. Adapted versions of the strategy were used in the Cochrane Central Register for Controlled Trials and Medline via Pubmed (which included the search term “delayed primary closure”), PROSPERO and Clinicaltrials.gov (not shown). Results for ‘surgery type’ were combined using ‘AND’ with search terms for ‘wound infection’ ‘AND’ ‘randomised studies’.

OVID SP version of Medline

Search criteria	Search terms
Surgery type	<ol style="list-style-type: none"> 1. Abdomen/mi, su [Microbiology, Surgery] 2. Abdomen, Acute/co, mi, su [Complications, Microbiology, Surgery] 3. Enterostomy/ae, mt [Adverse Effects, Methods] / 4. Appendicitis/co, mi, pc, su [Complications, Microbiology, Prevention & Control, Surgery] 5. Laparotomy/ae, co, mt [Adverse Effects, Complications, Methods] 6. Wounds and injuries/ 7. Or/1-6
Wound infection	<ol style="list-style-type: none"> 1. Surgical wound infection/ 2. Wound healing/ 3. Surgical wound dehiscence/
Randomised studies	<ol style="list-style-type: none"> 1. Randomized controlled trial.pt 2. Controlled clinical trial.pt 3. Randomized controlled trial.sh 4. Random allocation.sh 5. Double blind method.sh 6. Single blind method.sh 7. Or/1-6 8. Exp animals/ not human/ 9. 7 not 8 10. Clinical trial.pt 11. Exp clinical trial/ 12. (clinical adj trial\$.tw 13. ((singl\$ or doubl\$ or treb\$ or tripl\$) adj (blind\$3 or mask\$3)).tw 14. Random.tw 15. Or/10-14 16. 15 not 8 17. 16 not 9 18. Case report.tw 19. Letter/ 20. Historical article/ 21. Or/18-20 22. 21 not 8 23. 22 not 9 24. 9 or 17 25. 24 not 23

eTable 2: Classification of operative wounds based on degree of microbial contamination

Classification	Criteria
Clean	Elective, not emergency, non-traumatic, primarily closed; no acute inflammation; no break in technique; respiratory, gastrointestinal, biliary and genitourinary tracts not entered.
Clean-contaminated	Urgent or emergency case that is otherwise clean; elective opening of respiratory, gastrointestinal, biliary or genitourinary tract with minimal spillage (e.g. appendectomy) not encountering infected urine or bile; minor technique break.
Contaminated	Non-purulent inflammation; gross spillage from gastrointestinal tract; entry into biliary or genitourinary tract in the presence of infected bile or urine; major break in technique; penetrating trauma <4 hours old; chronic open wounds to be grafted or covered.
Dirty	Purulent inflammation (e.g. abscess); preoperative perforation of respiratory, gastrointestinal, biliary or genitourinary tract; penetrating trauma >4 hours old.

Reference: Berford F, Gandon J. Postoperative wound infections: the influence of ultraviolet irradiation of the operating room and of various other factors. *Ann Surg* 1964; **160**(Suppl 1): 1-192.

eTable 3: Gender, total risk factors and losses to follow-up

Study	Gender		Total risk factors				Losses to follow-up	
	M	F	DPC	Total	PC	Total	Dead	Lost
Cohn*	37	12	15	26	11	23	2	0
Chang	41	29	unclear		unclear		0	0
Chatwiriya Charoen	20			24	unclear		unclear	0
Duttaroy	72	9					4	0
Khan	69	31	unclear		unclear		0	unclear
Lahat	19	21	17	20	16	20	0	0
McGreal	95	79	7	34	6	36	0	0
Tsang	34	29	unclear		unclear		unclear	unclear

unclear

DPC = Delayed primary closure; PC = primary closure; *excludes data from two patients who died

eTable 4: Risk factors for surgical site infection (blanks indicate no data)

Risk factor	Study							
	Chaing	Chatwiritacharoen	Cohn	Duttaroy	Khan	Lahat	McGreal	Tsang
diabetes			3		13	1	4	
malnutrition			5	5	1		3	
steroids			1	0	3	12	1	
cardiovascular disease			5	9		4	5	
obesity			10	2			7	
malignancy			2	0		17		
smoking				34		17		
mean incision length								
duration of symptoms >4hours			8					
previous surgery <30D			6					
AIDS/ HIV			3				1	
alcoholic				34				
anaemia				2				
jaundice				0				
pelvic radiation						15		
hepatitis					5			
systemic infection, pneumonia and UTI					3			

UTI = Urinary tract infection

eTable 5: Details of wound irrigation and perioperative antibiotics

Study	Wound lavage	Perioperative antibiotics
Chang	warm saline in peritoneum until clear effluent	perioperative antibiotics until temperature, white cell count and gastrointestinal function normalised
Cohn	unclear	unclear
Chatwiriya Charoen	wound irrigated with normal saline	pre-operative prophylactic and 5-10 days post-operatively
Duttaroy	3-5 litres in peritoneum	at least 7 days of ceftriaxone, amikacin, metronidazole
Khan	wound cleansed with normal saline	all patients, admission to discharge, intravenous
Lahat	not stated	pre-operative prophylactic
McGreal	1-3 litres in peritoneum; wound lavaged	all induction antibiotics; further to be decided
Tsang	performed with saline	pre-operative prophylactic and seven days post-operatively

eTable 6: Risk of bias

	Random sequence generation	Allocation concealment	Blinding of participants and personnel*	Blinding of outcome assessment*	Incomplete outcome data*	Selective reporting	Anything else, ideally pre-specified							
Study	Accepted method used to generate random sequence?	A method where surgeon opinion could not influence randomisation		Blinding?	Blinding?	Attrition, exclusions	Accepted definition of wound infection?	Overall risk						
	Detail	Detail	Detail	Blinding?	Blinding?	Details	Details	Details						
Chang	high	based on date of operation	high	none	low	high	low	low	high	only 2 week FU	high	high		
Chatwiriyaoharoen	high	alternate methods	high	none	low	high	high	self-reported; no follow-up details	high	patient reported events	high	patient reported at 5-14 days	high	high
Cohn	unclear	not stated	high	none	unclear	unclear	low	low	low	yes	low	low	high	
Duttaroy	unclear	not stated	high	sealed envelope prior to skin closure, but following closure of abdominal wall	low	high	low	low	low	low	yes	low	low	high
Khan	low	computer	unclear	none	low	high	high	self-reported wound infections	high	patient reported events	high	patient reported wound infections	high	high
McGreal	low	computer	high	sealed envelope prior to skin closure, but following closure of peritoneum	low	high	unclear	complete/incomplete follow-up not stated	low	low	yes	high	high	high
Lahat	high	alternate methods	high	none	low	high	high	not stated	low	high	only 2 week FU	high	high	high
Tsang	high	odd/even hospital numbers	high	none	low	high	high	not stated	high	only one outcome reported	high	unclear	high	high