Attachment 4

Meta-analysis feasibility assessment

Table S1 Feasibility assessment for meta-analysis of individual outcomes

Outcome	Number of studies (>3)	Low assessment of quality or of risk of bias (bias in blinding, randomisation, missing outcome data, outcome assessment)	Population, intervention, comparator, outcome(s), time frame, and study design (PICOTS) assessment (clinical and methodological diversity)					Meta-analysis feasibility decision
			Population (eligibility, key demographics)	Intervention and comparator	Outcome (definition and means of reporting)	Study design	Time frame	
External fixator devices								
Pin tract infections	2 studies: Dirschl and Smith (1998) [4] and Sung *et al.* (2008) [5]	Different Dirschl and Smith (1998): 13/30 Sung *et al.* (2008): 24/30	Similar eligibility Sung *et al.* (2008): Aged 18 years and over, could consent, functioned independently, lived locally, sustained a fracture of the humerus, distal radius, wrist, femur, tibia, or ankle for which external fixation was the chosen initial treatment Dirschl and Smith (1998): All patients with external fixation devices applied at the study centre within the study period	Similar device(s) Both: Stryker Hoffman (+6 more in Dirschl and Smith (1998)) Different locations Dirschl and Smith (1998): Internal Sung *et al.* (2008): External	Definition similarity unclear Dirschl and Smith (1998): Not reported Sung *et al.* (2008): Any site of purulence, erythema, or drainage Similar measurement Dirschl and Smith (1998): N, derive % (not reported by reprocessing cycle)	Different Sung *et al.* (2008): Randomised controlled trial (RCT) Dirschl and Smith (1998): Non-randomised controlled trial (NRCT)	Unclear similarity Sung *et al.* (2008): 1–20 weeks Dirschl and Smith (1998): Not reported	Does not meet criteria – too few studies

			Demographics similarity unclear Age: Dirschl and Smith (1998): Not reported Sung *et al.* (2008): 45 years % female: Dirschl and Smith (1998): Not reported Sung *et al.* (2008): 26%	Different number of reprocessing cycles Dirschl and Smith (1998): 1–2 Sung *et al.* (2008): 1	Sung *et al.* (2008): N, %			
Device failure rate	2 studies: Dirschl and Smith (1998) [4] and Sung *et al.* (2008) [5]	Different Dirschl and Smith (1998): 13/30 Sung *et al.* (2008): 24/30	Similar eligibility Sung *et al.* (2008): Aged 18 years and over, could consent, functioned independently, lived locally, sustained a fracture of the humerus, distal radius, wrist, femur, tibia, or ankle for which external fixation was the chosen initial treatment Dirschl and Smith (1998): All patients with external fixation devices applied at the study centre within the study period Demographics similarity unclear	Similar device(s) Both: Stryker Hoffman (+6 more in Dirschl and Smith (1998)) Different locations Dirschl and Smith (1998): Internal Sung *et al.* (2008): External Different number of reprocessing cycles	Definition unclear: Dirschl and Smith (1998): Mechanical or other failure Sung *et al.* (2008): Loss of fixation and loosening during follow up Similar measurement Dirschl and Smith (1998): n, derive % (not reported by reprocessing cycle)	Different Sung *et al.* (2008): RCT Dirschl and Smith (1998): NRCT	Unclear time frame Sung *et al.* (2008): 1–20 weeks Dirschl and Smith (1998): Not reported	Does not meet criteria – too few studies

			Age: Dirschl and Smith (1998): Not reported Sung *et al.* (2008): 45 years % female: Dirschl and Smith (1998): Not reported Sung *et al.* (2008): 26%	Dirschl and Smith (1998): 1–2 Sung *et al.* (2008): 1	Sung *et al.* (2008): n, %			
Reoperations	1 study: Dirschl and Smith (1998) [4]	N/A	N/A	N/A	N/A	N/A	N/A	Does not meet criteria – too few studies
Ophthalmic devices								
Needle tip issues	1 study: Perry (1996) [6]	N/A	N/A	N/A	N/A	N/A	N/A	Does not meet criteria – too few studies
Phacoemulsification time	1 study: Perry (1996) [6]	N/A	N/A	N/A	N/A	N/A	N/A	Does not meet criteria – too few studies
Endoscopic and laparoscopic devices								
Procedure time	3 studies: Brady *et al.* (2017) [1]	Similar Brady *et al.* (2017): 23/30	Similar eligibility Brady *et al.* (2017): Patients attending for laparoscopic	Broadly similar devices/procedures Brady *et al.* (2017): LigaSure Sealer/Divider 5 mm–37 cm for	Same definition	Different Brady *et al.* (2017): NRCT	Similar Brady *et al.* (2017):	Does not meet criteria – different measurements, non-normal

Mihanović *et al.* (2021) [3] de Sousa *et al.* (2018) [2]	Mihanović *et al.* (2021): 28/30 de Sousa *et al.* (2018): 24/30	resections of right and sigmoid colectomies Mihanović *et al.* (2021): All patients with acute appendicitis de Sousa *et al.* (2018): All surgical interventions using ultrasonic scalpel/shears/scissors (Harmonic ACE®) and the linear suture machine (GIA Covidien™) with cut and anastomosis (various regions of body) Different demographics Age: Brady *et al.* (2017): 66 years Mihanović *et al.* (2021): 15 years de Sousa *et al.* (2018): 57 years % female: Brady *et al.* (2017): 50% Mihanović *et al.* (2021): 20%	laparoscopic colorectal surgery Mihanović *et al.* (2021): Ultrasonic scalpel/shears/scissors for laparoscopic appendectomy de Sousa *et al.* (2018): Ultrasonic s scalpel/shears/scissors (Harmonic ACE®) for digestive or thoracic surgery (intestines, stomach, oesophagus) Different locations Brady *et al.* (2017): External Mihanović *et al.* (2021): Internal de Sousa *et al.* (2018): External Same number of reprocessing cycles:	Different measurements (minutes) Brady *et al.* (2017): µ, standard deviation (SD) (unadjusted) de Sousa *et al.* (2018): µ, SD (unadjusted) Mihanović *et al.* (2021): (Adjusted) median, interquartile range (IQR) de Sousa *et al.* (2018) report overall and by diagnosis-related group	Mihanović *et al.* (2021): RCT de Sousa *et al.* (2018): NRCT	Procedure duration Mihanović *et al.* (2021): Procedure duration de Sousa *et al.* (2018): Procedure duration	outcome distribution

			de Sousa *et al.* (2018): 60% Health status: Brady *et al.* (2017): Body mass index (BMI) 30 Mihanović *et al.* (2021): BMI 20 de Sousa *et al.* (2018): Not reported	Brady *et al.* (2017): 1 Mihanović *et al.* (2021): 1 de Sousa *et al.* (2018): 1				
Duration of hospital stay	3 studies: Brady *et al.* (2017) [1] Mihanović *et al.* (2021) [3] de Sousa *et al.* (2018) [2]	Similar Brady *et al.* (2017): 23/30 Mihanović *et al.* (2021): 28/30 de Sousa *et al.* (2018): 24/30	Similar eligibility Brady *et al.* (2017): Patients attending for laparoscopic resections of right and sigmoid colectomies Mihanović *et al.* (2021): All patients with acute appendicitis de Sousa *et al.* (2018): All surgical interventions performed in 2014 in which ultrasonic scalpel/shears/scissors (Harmonic ACE® -5 mm/36 cm C/rod) and the linear suture machine GIA Covidien™ with cut and anastomosis (No. 55/60-3.8, No. 75/80-3.8, and No. 75/80-	Broadly similar devices/procedures Brady *et al.* (2017): LigaSure Sealer/Divider 5 mm–37 cm for laparoscopic colorectal surgery Mihanović *et al.* (2021): Ultrasonic scalpel/shears/scissors for laparoscopic appendectomy de Sousa *et al.* (2018): Ultrasonic scalpel/shears/scissors (Harmonic ACE®) for digestive or thoracic surgery (intestines, stomach, oesophagus)	Same definition Different measurements (days) Brady *et al.* (2017): µ, SD (unadjusted) de Sousa *et al.* (2018): µ, SD (unadjusted) Mihanović *et al.* (2021): Median, IQR	Different Brady *et al.* (2017): NRCT Mihanović *et al.* (2021): RCT de Sousa *et al.* (2018): NRCT	Similar Brady *et al.* (2017): Length of stay Mihanović *et al.* (2021): Length of stay de Sousa *et al.* (2018): Length of stay	Does not meet criteria – different measurements, non-normal outcome distribution

4.8) were used (various regions of body)

Different demographics

Age: Brady *et al.* (2017): 66 years

Mihanović *et al.* (2021): 15 years

de Sousa *et al.* (2018): 57 years

% female: Brady *et al.* (2017): 50%

Mihanović *et al.* (2021): 20%

de Sousa *et al.* (2018): 60%

Health status:

Brady *et al.* (2017): BMI 30

Mihanović *et al.* (2021): BMI 20

de Sousa *et al.* (2018): Not reported

Different locations

Brady *et al.* (2017): External

Mihanović *et al.* (2021): Internal

de Sousa *et al.* (2018): External

Same number of reprocessing cycles:

Brady *et al.* (2017): 1

Mihanović *et al.* (2021): 1

de Sousa *et al.* (2018): 1

Complications (infections, additional interventions, reoperations)	3 studies: Brady *et al.* (2017) [1] Mihanović *et al.* (2021) [3] de Sousa *et al.* (2018) [2]	Similar Brady *et al.* (2017): 23/30 Mihanović *et al.* (2021): 28/30 de Sousa *et al.* (2018): 24/30	Similar eligibility Brady *et al.* (2017): Patients attending for laparoscopic resections of right and sigmoid colectomies Mihanović *et al.* (2021): All patients with acute appendicitis de Sousa *et al.* (2018): All surgical interventions performed in 2014 in which ultrasonic scalpel/shears/scissors (Harmonic ACE® (5 mm/36 cm C/rod) and the linear suture machine GIA Covidien™ with cut and anastomosis (No. 55/60-3.8, No. 75/80-3.8, and No. 75/80-4.8) were used (various regions of body) Different demographics Age: Brady *et al.* (2017): 66 years Mihanović *et al.* (2021): 15 years	Broadly similar devices/procedures Brady *et al.* (2017): LigaSure Sealer/Divider 5 mm–37 cm for laparoscopic colorectal surgery Mihanović *et al.* (2021): Ultrasonic scalpel/shears/scissors for laparoscopic appendectomy de Sousa *et al.* (2018): Ultrasonic scalpel/shears/scissors (ACE®) for digestive or thoracic surgery (intestines, stomach, oesophagus) Different locations Brady *et al.* (2017): External Mihanović *et al.* (2021): Internal de Sousa *et al.* (2018): External	Different definitions de Sousa *et al.* (2018): Infections, reoperations, re-hospitalisations Mihanović *et al.* (2021): Complications (intraoperative, postoperative, reoperations) Brady *et al.* (2017): Additional interventions required, reoperations Similar reporting de Sousa *et al.* (2018): % Mihanović *et al.* (2021): n, % Brady *et al.* (2017): n, %	Different Brady *et al.* (2017): NRCT Mihanović *et al.* (2021): RCT de Sousa *et al.* (2018): NRCT	Different time periods de Sousa *et al.* (2018): 30 days Mihanović *et al.* (2021): 30 days Brady *et al.* (2017): Surgery to discharge	Does not meet criteria for meta-analysis – different devices

de Sousa *et al.* (2018): 57 years

% female: Brady *et al.* (2017): 50%

Mihanović *et al.* (2021): 20%

de Sousa *et al.* (2018): 60%

Health status: Brady *et al.* (2017): BMI 30

Mihanović *et al.* (2021): BMI 20

de Sousa *et al.* (2018): Not reported

Same number of reprocessing cycles:

Brady *et al.* (2017): 1

Mihanović *et al.* (2021): 1

de Sousa *et al.* (2018): 1