19. Laparoscopic surgical removal of endometriotic lesions	
Description	Laparoscopic ablation/excision of lesions.
Mechanism of action	Surgical removal of lesions improves fertility.
Volume of evidence	Systematic review examining laparoscopic surgical removal of lesions, with pain outcomes considered: - 2 RCTs examining ablation/excision +/- adhesiolysis versus no intervention in stage 1 and 2 endometriosis. - No RCTs in stage 3 and 4 endometriosis. Observational studies of repeat surgery. Observational studies of laparoscopic surgery following failed IVF.
Consistency of evidence	Poor – the results from the 2 RCTs differed.
Applicability of evidence	Applicable.
Effectiveness	Systematic review and meta-analysis suggests fertility benefit from laparoscopic removal of endometriosis. First operations tend to produce a better response than subsequent surgical procedures, the pregnancy rates after repeat surgery being approximately half that with primary surgery.
Adverse effects	Complications of laparoscopic surgery.
GRADE – evidence quality	Moderate for primary surgery – trial results not consistent. Low for impact of repeat surgery – observational studies only. Low for laparoscopic surgery following failed IVF – observational studies only.
Consensus	
Consensus statement	**Q47:** **Laparoscopic surgical removal of endometriosis improves fertility in stage 1 and 2 endometriosis** (strong). **Q48:** **Although RCTs have failed to demonstrate benefit of excision over ablation, it is recommended to excise lesions where possible, especially where pain is present** (weak).
References	Jacobson et al (2009); Vercellini et al (2009)

20. Laparoscopic removal of endometriomas	
Description	Laparoscopic excision (or cystectomy) for endometrioma, where the entire cyst wall is completely removed. Laparoscopic ablation (or drainage/fenestration and electrocoagulation) of endometrioma, where the endometriotic cyst is opened, its contents drained and surgical electrocautery is applied to the cyst wall.
Mechanism of action	Removal of ovarian endometriotic cyst, preferably retaining as much normal ovary tissue as possible, designed to enhance fertility.
Volume of evidence	Systematic review of 2 RCTs examining laparoscopic cystectomy versus drainage and coagulation of ovarian endometriomas. Other studies have assessed the impact of ovarian surgery for endometriomas on ovarian reserve.
Consistency of evidence	Good.
Applicability of evidence	Applicable.
Effectiveness	Laparoscopic cystectomy for endometriomas ≥4cm is associated with improved fertility and lower recurrence rates compared to drainage and coagulation. If IVF is required, ovarian access may be improved and it is believed that pelvic infection rates may be reduced by prior surgery for endometriomas. Harmful effects on ovarian reserve may accompany stripping endometriomas, although there is insufficient evidence that this is worse for stripping versus drainage and coagulation. One small RCT examining suturing versus electrosurgical diathermy for haemostasis, with adhesions as outcome.

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Complications of laparoscopic surgery.
High.
Q49: **Laparoscopic excision (cystectomy) for endometriomas is preferred where possible to laparoscopic ablation (drainage and coagulation) to enhance fertility** (strong)
Hart et al (2011); Pellicano et al (2008).

21. Surgery for deep infiltrating endometriosis (DIE)	
Description	Conservative surgery involves removal of endometriosis that can safely be undertaken without risking surgery to the pelvic viscera. If DIE involves the bowel wall, particularly the rectum, the surgical approaches are shaving, disc excision or excision and reanastomosis. If DIE involves the urinary tract or vaginal walls, similar principles apply.
Mechanism of action	Removal of DIE designed to improve fertility.
Volume of evidence	Primarily observational studies.
Consistency of evidence	Poor.
Applicability of evidence	Difficult to apply owing to study design, poor description of disease extent including depth of penetration, heterogeneous patient populations, inconsistency of access to appropriate surgical expertise, variable radicality of surgery in the same studies, variable experience and expertise of surgeons, short follow up, poor description of dropouts, variable use of postoperative medical therapy .
Effectiveness	Suggestion of improved fertility in observational studies.
Adverse effects	Variable reports of incidence of major intra- and post-operative complications from the radical surgical approaches, ranging from 0-13%.
GRADE – evidence quality	Very low, owing to study design, as well as volume, consistency and applicability of evidence issues.
Consensus	
Consensus statement	**Q50:** **There is no clarity as to the best surgical approach to DIE in women with infertility** (weak). **Q51:** **What is clear is that highly specialised surgical expertise is required by surgeons, who undertake this kind of surgery, and it should be undertaken only within centres of expertise** (weak).
References	Chapron et al (1999); Vercellini et al (2006); Barri et al (2010).

22. Adjunct medical therapy before or after surgery for infertility	
Description	Pre- and/or postoperative adjunct hormonal medical therapy.
Mechanism of action	Designed to suppress endometriosis and enhance fertility.
Volume of evidence	Systematic review of 16 RCTs.
Consistency of evidence	Good.
Applicability of evidence	Applicable.
Effectiveness	No evidence of any fertility benefit from postoperative medical therapy. No evidence of benefit of pre- and postoperative medical therapy versus postoperative medical therapy alone (1 RCT). No trials compared preoperative medical therapy to surgery alone. No trials compared pre- and postoperative medical therapy to surgery alone.
Adverse effects	Side effects common amongst women on hormonal suppressive therapy.
GRADE – evidence quality	High.
Consensus	
Consensus statement	**Q52:** **Medical adjunct therapy in conjunction with laparoscopic surgery has not been shown to have fertility benefit** (strong)
References	Furness et al (2004).

23-a. Controlled ovarian stimulation	
Description	Letrozole versus gonadotrophins.
Mechanism of action	Different methods of stimulating ovarian follicle development.
Volume of evidence	Letrozole versus gonadotrophins: 1 RCT including 20 women.
Consistency of evidence	Minimal evidence.
Applicability of evidence	Applicable.
Effectiveness	Letrozole versus gonadotrophins: higher total number of follicles with gonadotrophins, but no evidence of a difference in pregnancy rate per completed cycle.
Adverse effects	Multiple pregnancy.
GRADE – evidence quality	Low – single very small RCT n=20.
Consensus	
Consensus statement	**Q53:** **For controlled ovarian stimulation there is no evidence to support the use of ovarian stimulation alone and insufficient evidence to recommend one agent over another** (weak).
References	Aygen et al (2010).