National Institute for Health and Care Excellence

Final

Fertility problems: assessment and treatment

[I] Tubal catheterisation

NICE guideline NG257

Evidence reviews underpinning recommendation 1.34.2 in the NICE guideline

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Final

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Tubal catheterisation

Review question

What is the likelihood of spontaneous conception when tubal catheterisation/cannulation is used for the treatment of proximal tubal obstruction?

Introduction

Fallopian tubal catheterisation is a trans-cervical procedure in which a catheter is passed through the tubal ostium into the fallopian tube. It can be done under radiological or hysteroscopic guidance. It has been postulated to relieve proximal tubal obstruction and hence improve the likelihood of conception over expectant management in people with this cause of subfertility. The aim of this review is to determine the likelihood of spontaneous conception leading to clinical pregnancy or live birth, and other outcomes, when tubal catheterisation/cannulation is used for the treatment of proximal tubal obstruction.

Summary of the protocol

See Table 1 for a summary of the Population, Intervention, Comparison and Outcome (PICO) characteristics of this review.

Table 1: Summary of the protocol (PICO table)

Population	People undergoing tubal catheterisation/cannulation for the treatment of proximal tubal obstruction
Intervention	Tubal catheterisation/cannulation for the treatment of proximal tubal obstruction
Comparison	N/A
Outcome	**Critical** • Live birth rate (spontaneous conception) as proportion of those who underwent tubal catheterisation/cannulation • Clinical pregnancy (spontaneous conception; intrauterine pregnancy) as proportion of those who underwent tubal catheterisation/cannulation **Important** • Ectopic pregnancy rate as proportion of those who underwent tubal catheterisation/cannulation • Miscarriage rate as proportion of those who underwent tubal catheterisation/cannulation • Tubal perforation rate as proportion of those who underwent tubal catheterisation/cannulation

N/A: not applicable

For further details see the review protocol in appendix A.

Methods and process

This evidence review was developed using the methods and process described in Developing NICE guidelines: the manual. Methods specific to this review question are described in the review protocol in appendix A and the methods document (supplementary document 1).

Due to the absence of minimally important differences for this review, which are not appropriate for non-comparative data, imprecision was judged based on optimal information

size criteria. Evidence was considered seriously imprecise if there were less than 300 events, based on the rule-of-thumb specified in version 3.2 of the GRADE handbook (Schünemann 2009), and very seriously imprecise if there were less than 150 events. The threshold for very serious imprecision was a pragmatic decision, in the absence of a rule-of-thumb being available, based on the fact that this is half the number required for serious imprecision, which would be consistent with the approach suggested for continuous outcomes.

Declarations of interest were recorded according to NICE's conflicts of interest policy.

Case series evidence

Included studies

Forty studies were included for this review. These included 7 prospective case series (Cobellis 2012, Cohen 2016, Hayashi 1994, Hayashi 1998, Ikechebelu 2018, Seyam 2016, Sowa 1993), and 30 retrospective case series (Al-Jaroudi 2005, Al-Omari 2014, Anil 2011, Badawy 2019, Bhargava 2005, Capitano 1991, Chung 2012, Das 2007, Dwivedi 2005, Fataftah 2022, Ferraiolo 1995, Gazzera 1998, Gleicher 1993, Hou 2014, Kelekis 1992, Kumpe 1990, Lang 1990, Lang 2000, Maikis 2000, Mallinarini 2010, Maubon 1992, Nakamura 1996, Osada 2000, Papaioannou 2002, Pyra 2020, Sato 1993, Schill 1999, Tanaka 2011a, Thurmond 1990, Woolcott 1995). Two studies (Huang 2019, Huang 2022) compared different anti-adhesion agents that are not relevant to this review and do not reflect standard NHS practice, and for these studies only the control (usual care) arm was extracted. One RCT (Rahimunnisa 2009) was also included that compared different methods of guidance (ultrasound versus tactile) but this comparison was not of interest to this review and the arms were combined and the study treated as a prospective case series.

The included studies are summarised in Table 2.

Thirty-one studies used a tubal catheterisation procedure to treat the proximal tubal obstruction, 26 of these studies with fluoroscopic guidance (Al-Omari 2014, Anil 2011, Badawy 2019, Bhargava 2005, Capitano 1991, Cobellis 2012, Dwivedi 2005, Ferraiolo 1995, Gleicher 1993, Hayashi 1998, Huang 2019, Huang 2022, Kelekis 1992, Kumpe 1990, Lang 1990, Lang 2000, Mallinarini 2010, Maubon 1992, Nakamura 1996, Osada 2000, Papaioannou 2002, Pyra 2020, Sato 1993, Sowa 1993, Thurmond 1990, Woolcott 1995), 1 of these studies with radioscopic guidance (Gazzera 1998), 1 of these studies with video guidance (Tanaka 2011a), and 3 studies did not report the method of guidance for tubal catheterisation (Al-Jaroudi 2005, Fataftah 2022, Hayashi 1994). Nine studies used a tubal cannulation procedure to treat the proximal tubal obstruction, 5 of these studies with laparoscopic guidance (Chung 2012, Hou 2014, Ikechebelu 2018, Maikis 2000, Schill 1999), 1 of these studies with ultrasound guidance (Cohen 2016), 2 of these studies with ultrasound or laparoscopic/tactile guidance (Rahimunnisa 2009, Seyman 2016), and 1 study did not report the method of guidance for tubal cannulation (Das 2007).

The mean age of participants in all studies (where mean age was reported) was below 35 years, with the exception of 1 study where the mean age was 35.7 years (Ikechebelu 2018). Mean age (or median) was not reported in 9 studies (Badawy 2019, Cohen 2016, Fataftah 2022, Ferraiolo 1995, Hayashi 1994, Kelekis 1992, Maikis 2000, Rahimunnisa 2009, Seyman 2016).

Eight studies included only those with bilateral proximal tubal obstruction (Al-Jaroudi 2005, Gleicher 1993, Hayashi 1994, Kumpe 1990, Osada 2000, Pyra 2020, Rahimunnisa 2009, Seyam 2016), 1 study included only those with unilateral proximal tubal obstruction (Fataftah 2022), and 30 studies included those with either unilateral or bilateral proximal tubal obstruction (Al-Omari 2014, Anil 2011, Badawy 2019, Bhargava 2005, Capitano 1991, Chung 2012, Cobellis 2012, Cohen 2016, Das 2007, Dwivedi 2005, Ferraiolo 1995, Gazzera 1998,

Hayashi 1998, Hou 2014, Huang 2019, Huang 2022, Ikechebelu 2018, Kelekis 1992, Lang 1990, Lang 2000, Mallarini 2010, Maubon 1992, Nakamura 1996, Papaioannou 2002, Sato 1993, Schill 1999, Sowa 1993, Tanaka 2011a, Thurmond 1990, Woolcott 1995) although in 3 of these studies results were reported separately for those with unilateral and bilateral obstruction (Chung 2012, Cobellis 2012, Hou 2014). In 1 study (Maikis 2000) it is unclear if the proximal tubal obstructions were unilateral, bilateral or a combination.

See the literature search strategy in appendix B and study selection flow chart in appendix C.

Excluded studies

Studies not included in this review are listed, and reasons for their exclusion are provided in appendix J.

Summary of included studies

Summaries of the studies that were included in this review are presented in Table 2.

Table 2: Summary of included studies

Study	Population	Intervention	Outcomes	Comments
Al-Jaroudi 2005 Retrospective case series Canada	N with proximal tubal obstruction=75 Age in years, mean (SD): 33.2 (5) Duration of subfertility in years, mean (SD): 2.9 (2.2) Percentage with bilateral obstruction: 100 Percentage with unilateral obstruction: 0 Percentage with primary/secondary infertility: 33/67	Evaluation of proximal tubal obstruction: Hysterosalpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: NR	• Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages • Tubal perforations	Follow-up (months): 30 N who underwent tubal catheterisation or cannulation: 75 N lost to follow-up: 3 Time from procedure to event in those with event in months, mean: NR (median 16.2)
Al-Omari 2014 Retrospective case series Jordan	N with proximal tubal obstruction= 61 Age in years, mean (SD): 34 (NR; range 20-45) Duration of subfertility in years, mean (SD):	Evaluation of proximal tubal obstruction: Selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages	Follow-up (months): 12 N who underwent tubal catheterisation or cannulation: 61 N lost to follow-up: 0

Study	Population	Intervention	Outcomes	Comments
	4 (NR; range 2-14) Percentage with bilateral obstruction: 64 Percentage with unilateral obstruction: 36 Percentage with primary/secondary infertility: 41/59			Time from procedure to event in those with event in months, mean: NR
Anil 2011 Retrospective case series Singapore	N with proximal tubal obstruction= 96 Age in years, mean (SD): 33.5 (NR; range 21.7-41.9) Duration of subfertility in years, mean (SD): NR Percentage with bilateral obstruction: 46 Percentage with unilateral obstruction: 54 Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Hysterosalpingography & selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages • Tubal perforations	Follow-up (months): Mean 12 (range 4-48) N who underwent tubal catheterisation or cannulation: 78 N lost to follow-up: 0 Time from procedure to event in those with event in months, mean: NR
Badawy 2019 Retrospective case series US	N with proximal tubal obstruction= 37 Age in years, mean (SD): NR (NR; range 28-51) Duration of subfertility in years, mean (SD): NR Percentage with bilateral obstruction: 39	Evaluation of proximal tubal obstruction: Hysterosalpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Clinical pregnancies (spontaneous conception; intrauterine)	Follow-up (months): NR N who underwent tubal catheterisation or cannulation: 36 N lost to follow-up: 1 Time from procedure to event in those with event in

Study	Population	Intervention	Outcomes	Comments
	Percentage with unilateral obstruction: 61 Percentage with primary/secondary infertility: NR			months, mean: NR
Bhargava 2005 Retrospective case series India	N with proximal tubal obstruction= 21 Age in years, mean (SD): 29.2 (NR; range 23-40) Duration of subfertility in years, mean (SD): NR Percentage with bilateral obstruction: 43 Percentage with unilateral obstruction: 57 Percentage with primary/secondary infertility: 71/29	Evaluation of proximal tubal obstruction: NR Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies	Follow-up (months): 12 N who underwent tubal catheterisation or cannulation: 21 N lost to follow-up: NR Time from procedure to event in those with event in months, mean: 5
Capitano 1991 Retrospective case series Italy	N with proximal tubal obstruction= 108 Age in years, mean (SD): 32 (NR; range 24-41) Duration of subfertility in years, mean (SD): 5.7 (NR) Percentage with bilateral obstruction: 45 Percentage with unilateral obstruction: 55 Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Hysterosalpingography & selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages • Tubal perforations	Follow-up (months): 12 N who underwent tubal catheterisation or cannulation: 108 N lost to follow-up: 14 Time from procedure to event in those with event in months, mean: 3

Study	Population	Intervention	Outcomes	Comments
Chung 2012 Retrospective case series China	N with proximal tubal obstruction= 70 Age in years, mean (SD): 33.8 (3.7) Duration of subfertility in years, mean (SD): 4.5 (2.8) Percentage with bilateral obstruction: 56 Percentage with unilateral obstruction: 44 Percentage with primary/secondary infertility: 54/46	Evaluation of proximal tubal obstruction: Hysteroscopy Treatment of proximal tubal obstruction: Tubal cannulation Method of guidance: Laparoscopic	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages • Tubal perforations	Follow-up (months): Mean 35.3 (SD=17) N who underwent tubal catheterisation or cannulation: 70 N lost to follow-up: 17 Time from procedure to event in those with event in months, mean: NR
Cobellis 2012 Prospective case series Italy	N with proximal tubal obstruction= 33 Age in years, mean (SD): 27 (NR; range 23-38) Duration of subfertility in years, mean (SD): NR Percentage with bilateral obstruction: 36 Percentage with unilateral obstruction: 64 Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Hysterosalpingography & selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Tubal perforations	Follow-up (months): 6 N who underwent tubal catheterisation or cannulation: 33 N lost to follow-up: 1 Time from procedure to event in those with event in months, mean: NR
Cohen 2016 Prospective case series Israel	N with proximal tubal obstruction= 27 Age in years, mean (SD): NR	Evaluation of proximal tubal obstruction: Hysteroscopy Treatment of proximal tubal obstruction: Tubal cannulation	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous	Follow-up (months): NR N who underwent tubal catheterisation

Study	Population	Intervention	Outcomes	Comments
	Duration of subfertility in years, mean (SD): NR Percentage with bilateral obstruction: 67 Percentage with unilateral obstruction: 33 Percentage with primary/secondary infertility: 33/67	Method of guidance: Ultrasound	conception; intrauterine) • Ectopic pregnancies • Miscarriages • Tubal perforations	or cannulation: 27 N lost to follow-up: 1 Time from procedure to event in those with event in months, mean: NR (median 5)
Das 2007 Retrospective case series UK	N with proximal tubal obstruction= 53 Age in years, mean (SD): 28 (NR; range 20-46) Duration of subfertility in years, mean (SD): NR Percentage with bilateral obstruction: 85 Percentage with unilateral obstruction: 15 Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Hysteroscopy Treatment of proximal tubal obstruction: Tubal cannulation Method of guidance: NR	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages • Tubal perforations	Follow-up (months): NR N who underwent tubal catheterisation or cannulation: 53 N lost to follow-up: 17 Time from procedure to event in those with event in months, mean: NR
Dwivedi 2005 Retrospective case series India	N with proximal tubal obstruction= 204 Age in years, mean (SD): 32 (NR; range 24-41) Duration of subfertility in years, mean (SD): 3 (NR) Percentage with bilateral obstruction: 72	Evaluation of proximal tubal obstruction: Hysterosalpingography & selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies	Follow-up (months): 6 N who underwent tubal catheterisation or cannulation: 204 N lost to follow-up: 4 Time from procedure to event in those with event in

Study	Population	Intervention	Outcomes	Comments
	Percentage with unilateral obstruction: 28 Percentage with primary/secondary infertility: NR			months, mean: NR
Fataftah 2022 Retrospective case series Jordan	N with proximal tubal obstruction= 38 Age in years, mean (SD): NR (55% <35) Duration of subfertility in years, mean (SD): NR (68% <5) Percentage with bilateral obstruction: 0 Percentage with unilateral obstruction: 100 Percentage with primary/secondary infertility: 60.5/39.5	Evaluation of proximal tubal obstruction: Hysterosalpingography & selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: NR	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Miscarriages • Tubal perforations	Follow-up (months): 12 N who underwent tubal catheterisation or cannulation: 38 N lost to follow-up: 0 Time from procedure to event in those with event in months, mean: 4 (range 1-12)
Ferraiolo 1995 Retrospective case series Italy	N with proximal tubal obstruction= 117 Age in years, mean (SD): NR Duration of subfertility in years, mean (SD): NR Percentage with bilateral obstruction: NR Percentage with unilateral obstruction: NR	Evaluation of proximal tubal obstruction: Hysterosalpingography & selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages	Follow-up (months): 12 N who underwent tubal catheterisation or cannulation: 117 N lost to follow-up: 30 Time from procedure to event in those with event in months, mean: 6.8

Study	Population	Intervention	Outcomes	Comments
	Percentage with primary/secondary infertility: NR			
Gazzera 1998 Retrospective case series Italy	N with proximal tubal obstruction= 302 Age in years, mean (SD): 32 (NR; range 20-42) Duration of subfertility in years, mean (SD): NR Percentage with bilateral obstruction: 38 Percentage with unilateral obstruction: 62 Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Hysterosalpingography & selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Radioscopic	• Clinical pregnancies (spontaneous conception; intrauterine) • Tubal perforations	Follow-up (months): 12 N who underwent tubal catheterisation or cannulation: 302 N lost to follow-up: 0 Time from procedure to event in those with event in months, mean: NR
Gleicher 1993 Retrospective case series US	N with proximal tubal obstruction= 147 Age in years, mean (SD): 32.6 (5.1) Duration of subfertility in years, mean (SD): 4.2 (2.9) Percentage with bilateral obstruction: 100 Percentage with unilateral obstruction: 0 Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Hysterosalpingography & selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages • Tubal perforations	Follow-up (months): Mean 26.3 (SD=7.1) N who underwent tubal catheterisation or cannulation: 119 N lost to follow-up: 22 Time from procedure to event in those with event in months, mean: NR
Hayashi 1994 Prospective case series	N with proximal tubal obstruction= 36	Evaluation of proximal tubal obstruction: Hysterosalpingography & selective salpingography	• Live births (spontaneous conception)	Follow-up (months): Mean 30 (range 3-48)

Study	Population	Intervention	Outcomes	Comments
Japan	Age in years, mean (SD): NR (NR; range 21-42) Duration of subfertility in years, mean (SD): NR Percentage with bilateral obstruction: 100 Percentage with unilateral obstruction: 0 Percentage with primary/secondary infertility: NR	Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: NR	• Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages	N who underwent tubal catheterisation or cannulation: 36 N lost to follow-up: 0 Time from procedure to event in those with event in months, mean: NR
Hayashi 1998 Prospective case series Japan	N with proximal tubal obstruction= 21 Age in years, mean (SD): 33.2 (5.2) Duration of subfertility in years, mean (SD): NR Percentage with bilateral obstruction: NR Percentage with unilateral obstruction: NR Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Hysterosalpingography & selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages	Follow-up (months): NR N who underwent tubal catheterisation or cannulation: 21 N lost to follow-up: 0 Time from procedure to event in those with event in months, mean: NR
Hou 2014 Retrospective case series China	N with proximal tubal obstruction= 168 Age in years, mean (SD): 31.5 (3.8) Duration of subfertility in years, mean (SD): 5.2 (3.3)	Evaluation of proximal tubal obstruction: Hysteroscopy Treatment of proximal tubal obstruction: Tubal cannulation Method of guidance: Laparoscopic	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages	Follow-up (months): 24 N who underwent tubal catheterisation or cannulation: 168 N lost to follow-up: 14

Study	Population	Intervention	Outcomes	Comments
	Percentage with bilateral obstruction: 64 Percentage with unilateral obstruction: 36 Percentage with primary/secondary infertility: 31.5/68.5			Time from procedure to event in those with event in months, mean: NR
Huang 2019 Prospective case series (control arm of comparative study) China	N with proximal tubal obstruction= 100 Age in years, mean (SD): 30.1 (5.2) Duration of subfertility in years, mean (SD): NR Percentage with bilateral obstruction: 76 Percentage with unilateral obstruction: 24 Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Clinical pregnancies (spontaneous conception; intrauterine)	Follow-up (months): 12 N who underwent tubal catheterisation or cannulation: 100 N lost to follow-up: 2 Time from procedure to event in those with event in months, mean: NR
Huang 2022 Prospective case series (control arm of RCT) China	N with proximal tubal obstruction= 70 Age in years, mean (SD): 30.1 (5.2) Duration of subfertility in years, mean (SD): NR Percentage with bilateral obstruction: 71	Evaluation of proximal tubal obstruction: Selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Clinical pregnancies (spontaneous conception; intrauterine)	Follow-up (months): 12 & 36 N who underwent tubal catheterisation or cannulation: 70 N lost to follow-up: 4 Time from procedure to event in those with event in months, mean: NR

Study	Population	Intervention	Outcomes	Comments
	Percentage with unilateral obstruction: 29 Percentage with primary/secondary infertility: NR			
Ikechebelu 2018 Prospective case series Nigeria	N with proximal tubal obstruction= 27 Age in years, mean (SD): 35.7 (4.6) Duration of subfertility in years, mean (SD): 7.8 (3.7) Percentage with bilateral obstruction: 89 Percentage with unilateral obstruction: 11 Percentage with primary/secondary infertility: 37/63	Evaluation of proximal tubal obstruction: Hysteroscopy Treatment of proximal tubal obstruction: Tubal cannulation Method of guidance: Laparoscopic	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages • Tubal perforations	Follow-up (months): 6 N who underwent tubal catheterisation or cannulation: 27 N lost to follow-up: 0 Time from procedure to event in those with event in months, mean: NR
Kelekis 1992 Retrospective case series Greece	N with proximal tubal obstruction= 38 Age in years, mean (SD): NR (NR; range 25-35) Duration of subfertility in years, mean (SD): NR (NR; range 2-7) Percentage with bilateral obstruction: NR Percentage with unilateral obstruction: NR Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Hysterosalpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages • Tubal perforations	Follow-up (months): NR N who underwent tubal catheterisation or cannulation: 38 N lost to follow-up: NR Time from procedure to event in those with event in months, mean: 6

Study	Population	Intervention	Outcomes	Comments
Kumpe 1990 Retrospective case series US	N with proximal tubal obstruction= 22 Age in years, mean (SD): 32.8 (NR; range 26-40) Duration of subfertility in years, mean (SD): 3.3 (NR; range 1-7) Percentage with bilateral obstruction: 100 Percentage with unilateral obstruction: 0 Percentage with primary/secondary infertility: 23/77	Evaluation of proximal tubal obstruction: Hysterosalpingography & selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Tubal perforations	Follow-up (months): Mean 8.5 (range 1-16) N who underwent tubal catheterisation or cannulation: 22 N lost to follow-up: 0 Time from procedure to event in those with event in months, mean: NR
Lang 1990 Retrospective case series US	N with proximal tubal obstruction= 157 Age in years, mean (SD): 34 (NR; range 23-46) Duration of subfertility in years, mean (SD): 4.6 (NR) Percentage with bilateral obstruction: 88 Percentage with unilateral obstruction: 12 Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Hysterosalpingography & selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Tubal perforations	Follow-up (months): 30 N who underwent tubal catheterisation or cannulation: 96 N lost to follow-up: NR Time from procedure to event in those with event in months, mean: NR
Lang 2000 Retrospective case series US	N with proximal tubal obstruction= 430 Age in years, mean (SD): NR	Evaluation of proximal tubal obstruction: Hysterosalpingography & selective salpingography	• Live births (spontaneous conception) • Ectopic pregnancies	Follow-up (months): range 24-120 N who underwent tubal catheterisation

Study	Population	Intervention	Outcomes	Comments
	Median 33.1 (NR; range 21-46) Duration of subfertility in years, mean (SD): NR (NR; ≥1.5) Percentage with bilateral obstruction: NR Percentage with unilateral obstruction: NR Percentage with primary/secondary infertility: 46/54	Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Tubal perforations	or cannulation: 234 N lost to follow-up: 13 Time from procedure to event in those with event in months, mean: NR
Maikis 2000 Retrospective case series US	N with proximal tubal obstruction= 29 Age in years, mean (SD): NR (NR; range 23-38) Duration of subfertility in years, mean (SD): NR (NR; ≥1) Percentage with bilateral obstruction: NR Percentage with unilateral obstruction: NR Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Hysteroscopy Treatment of proximal tubal obstruction: Tubal cannulation Method of guidance: Laparoscopic	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages	Follow-up (months): range 24-60 N who underwent tubal catheterisation or cannulation: 29 N lost to follow-up: 19 Time from procedure to event in those with event in months, mean: 31.5
Mallarini 2010 Retrospective case series Italy	N with proximal tubal obstruction= 80 Age in years, mean (SD): 30 (NR; range 23-37) Duration of subfertility in years, mean (SD):	Evaluation of proximal tubal obstruction: Hysterosalpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Tubal perforations	Follow-up (months): 24 N who underwent tubal catheterisation or cannulation: 80 N lost to follow-up: 0

Study	Population	Intervention	Outcomes	Comments
	2.9 (NR; range 2-8) Percentage with bilateral obstruction: 70 Percentage with unilateral obstruction: 30 Percentage with primary/secondary infertility: NR			Time from procedure to event in those with event in months, mean: NR
Maubon 1992 Retrospective case series France	N with proximal tubal obstruction= 64 Age in years, mean (SD): 33.5 (NR; range 26-42) Duration of subfertility in years, mean (SD): 3.1 (NR; range 2-10) Percentage with bilateral obstruction: NR Percentage with unilateral obstruction: NR Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages • Tubal perforations	Follow-up (months): 6 N who underwent tubal catheterisation or cannulation: 64 N lost to follow-up: 26 Time from procedure to event in those with event in months, mean: NR
Nakamura 1996 Retrospective case series Japan	N with proximal tubal obstruction= 30 Age in years, mean (SD): 30 (NR; range 23-42) Duration of subfertility in years, mean (SD): 4 (NR; range 2-9) Percentage with bilateral obstruction: 48	Evaluation of proximal tubal obstruction: Selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies	Follow-up (months): NR N who underwent tubal catheterisation or cannulation: 30 N lost to follow-up: 4 Time from procedure to event in those with event in

Study	Population	Intervention	Outcomes	Comments
	Percentage with unilateral obstruction: 52 Percentage with primary/secondary infertility: NR			months, mean: 4.5 (range 1-14)
Osada 2000 Retrospective case series Japan	N with proximal tubal obstruction= 277 Age in years, mean (SD): NR Median 27.8 (NR; range 20-42) Duration of subfertility in years, mean (SD): 6.5 (NR) Percentage with bilateral obstruction: 100 Percentage with unilateral obstruction: 0 Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Tubal perforations	Follow-up (months): 12 N who underwent tubal catheterisation or cannulation: 133 N lost to follow-up: 0 Time from procedure to event in those with event in months, mean: NR
Papaioannou 2002 Retrospective case series UK	N with proximal tubal obstruction= 231 Age in years, mean (SD): 32.6 (5.1) Duration of subfertility in years, mean (SD): NR Median 3.6 (NR; range 0.4-23.4) Percentage with bilateral obstruction: NR Percentage with unilateral obstruction: NR	Evaluation of proximal tubal obstruction: Selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Clinical pregnancies (spontaneous conception; intrauterine) • Tubal perforations	Follow-up (months): range 16-56 N who underwent tubal catheterisation or cannulation: 226 N lost to follow-up: 65 Time from procedure to event in those with event in months, mean: NR

Study	Population	Intervention	Outcomes	Comments
	Percentage with primary/secondary infertility: 35/54			
Pyra 2020 Retrospective case series Poland	N with proximal tubal obstruction= 248 Age in years, mean (SD): 34.4 (4.7) Duration of subfertility in years, mean (SD): 3.6 (2.2) Percentage with bilateral obstruction: 100 Percentage with unilateral obstruction: 0 Percentage with primary/secondary infertility: 56/44	Evaluation of proximal tubal obstruction: Selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Clinical pregnancies (spontaneous conception; intrauterine) • Tubal perforations	Follow-up (months): 12 N who underwent tubal catheterisation or cannulation: 166 N lost to follow-up: 17 Time from procedure to event in those with event in months, mean: 12.2 (range 2-60)
Rahimunnisa 2009 Prospective case series (RCT arms combined) India	N with proximal tubal obstruction= 50 Age in years, mean (SD): NR Duration of subfertility in years, mean (SD): NR Percentage with bilateral obstruction: 100 Percentage with unilateral obstruction: 0 Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Hysteroscopy Treatment of proximal tubal obstruction: Tubal cannulation Method of guidance: Ultrasound or tactile	• Clinical pregnancies (spontaneous conception; intrauterine) • Tubal perforations	Follow-up (months): 6 N who underwent tubal catheterisation or cannulation: 50 N lost to follow-up: NR Time from procedure to event in those with event in months, mean: NR
Sato 1993 Retrospective case series	N with proximal tubal obstruction= 52	Evaluation of proximal tubal obstruction: Hysterosalpingography	• Clinical pregnancies (spontaneous conception; intrauterine)	Follow-up (months): NR N who underwent tubal

Study	Population	Intervention	Outcomes	Comments
Japan	Age in years, mean (SD): 33.6 (NR) Duration of subfertility in years, mean (SD): 7.6 (NR; range 1-17) Percentage with bilateral obstruction: 62 Percentage with unilateral obstruction: 38 Percentage with primary/secondary infertility: NR	Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Ectopic pregnancies	catheterisation or cannulation: 52 N lost to follow-up: NR Time from procedure to event in those with event in months, mean: NR
Schill 1999 Retrospective case series Germany	N with proximal tubal obstruction= 42 Age in years, mean (SD): 31 (NR; range 22-38) Duration of subfertility in years, mean (SD): 1.6 (NR; range 1-2.9) Percentage with bilateral obstruction: 43 Percentage with unilateral obstruction: 57 Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Falloposcopy Treatment of proximal tubal obstruction: Tubal cannulation Method of guidance: Laparoscopic	• Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages	Follow-up (months): Mean 21 (range 12-48) N who underwent tubal catheterisation or cannulation: 42 N lost to follow-up: 4 Time from procedure to event in those with event in months, mean: NR (range 3-6)
Seyam 2016 Prospective case series Egypt	N with proximal tubal obstruction= 200 Age in years, mean (SD): NR Duration of subfertility in	Evaluation of proximal tubal obstruction: Hysteroscopy Treatment of proximal tubal obstruction: Tubal cannulation	• Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies	Follow-up (months): 12 N who underwent tubal catheterisation or cannulation: 200

Study	Population	Intervention	Outcomes	Comments
	years, mean (SD): NR (≥1) Percentage with bilateral obstruction: 100 Percentage with unilateral obstruction: 0 Percentage with primary/secondary infertility: 76/24	Method of guidance: Ultrasound or laparoscopic		N lost to follow-up: 0 Time from procedure to event in those with event in months, mean: NR
Sowa 1993 Prospective case series Japan	N with proximal tubal obstruction= 58 Age in years, mean (SD): 33 (NR; range 26-40) Duration of subfertility in years, mean (SD): 7 (NR; range 2-17) Percentage with bilateral obstruction: 59 Percentage with unilateral obstruction: 41 Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Hysterosalpingography & selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages • Tubal perforations	Follow-up (months): NR N who underwent tubal catheterisation or cannulation: 58 N lost to follow-up: NR Time from procedure to event in those with event in months, mean: 3
Tanaka 2011a Retrospective case series Japan	N with proximal tubal obstruction= 304 Age in years, mean (SD): 34.5 (3.5) Duration of subfertility in years, mean (SD): NR (≥2) Percentage with bilateral obstruction: 67	Evaluation of proximal tubal obstruction: Falloposcopy Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Video	• Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages • Tubal perforations	Follow-up (months): 9 N who underwent tubal catheterisation or cannulation: 304 N lost to follow-up: 56 Time from procedure to event in those with event in

Study	Population	Intervention	Outcomes	Comments
	Percentage with unilateral obstruction: 33 Percentage with primary/secondary infertility: NR			months, mean: NR
Thurmond 1990 Retrospective case series US	N with proximal tubal obstruction= 100 Age in years, mean (SD): 32 (NR; range 19-46) Duration of subfertility in years, mean (SD): 4 (NR) Percentage with bilateral obstruction: NR Percentage with unilateral obstruction: NR Percentage with primary/secondary infertility: NR	Evaluation of proximal tubal obstruction: Hysterosalpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Live births (spontaneous conception) • Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages • Tubal perforations	Follow-up (months): 24 N who underwent tubal catheterisation or cannulation: 100 N lost to follow-up: 3 Time from procedure to event in those with event in months, mean: 7 (range 0.5-18)
Woolcott 1995 Retrospective case series Australia	N with proximal tubal obstruction= 66 Age in years, mean (SD): 34.7 (NR) Duration of subfertility in years, mean (SD): 1.8 (NR; range 0.25-10) Percentage with bilateral obstruction: 71 Percentage with unilateral obstruction: 29	Evaluation of proximal tubal obstruction: Hysterosalpingography & selective salpingography Treatment of proximal tubal obstruction: Tubal catheterisation Method of guidance: Fluroscopic	• Clinical pregnancies (spontaneous conception; intrauterine) • Ectopic pregnancies • Miscarriages	Follow-up (months): Mean 17 (range 3-30) N who underwent tubal catheterisation or cannulation: 44 N lost to follow-up: 7 Time from procedure to event in those with event in months, mean: NR

Study	Population	Intervention	Outcomes	Comments
	Percentage with primary/secondary infertility: NR			

NR: not reported; SD: standard deviation

See the full evidence tables in appendix D and the forest plots in appendix E.

Summary of the evidence

Planned subgroup analyses by age (mean ≤35 years and >35 years) were not possible as the mean age of participants in all studies (where mean age was reported) was below 35 years, with the exception of 1 study where the mean age was 35.7 years.

In the event of serious or very serious heterogeneity, subgroup analyses were performed (in addition to primary analyses) for those with bilateral proximal tubal obstruction, and those with unilateral proximal tubal obstruction. Stratified analyses were also performed based on length of follow-up for the critical outcomes.

See appendix F for modified GRADE tables.

Potential benefits of tubal catheterisation or cannulation

Very low quality evidence from 20 case series studies showed a live birth rate (spontaneous conception) of 16% (95% confidence interval [CI] 12% to 20%) for those who underwent tubal catheterisation or cannulation for the treatment of proximal tubal obstruction. However, there was serious heterogeneity in live birth rates. Stratified analyses showed a live birth rate of 16% (95% CI 10% to 26%) for those with bilateral obstruction, and 22% (95% CI 14% to 33%) for those with unilateral obstruction, but heterogeneity remained serious in these stratified analyses. Analyses stratified by length of follow-up showed a live birth rate of 13% (95% CI 6% to 25%) where spontaneous conception occurred within 6 months following the procedure, 19% (95% CI 10% to 33%) where pregnancies occurred within 12months following the procedure, and 17% (95% CI 12% to 22%) where pregnancies occurred at least 24 months after the procedure. Heterogeneity was serious or very serious for all follow-up intervals.

Very low quality evidence from 39 case series studies showed a clinical pregnancy rate (spontaneous intrauterine pregnancy) of 20% (95% CI 17% to 24%) for those who underwent tubal catheterisation or cannulation for the treatment of proximal tubal obstruction. However, there was very serious heterogeneity in clinical pregnancy, with rates ranging from 2% to 41%. Stratified analyses showed a clinical pregnancy rate of 19% (95% CI 12% to 28%) for those with bilateral obstruction, and 31% (95% CI 22% to 41%) for those with unilateral obstruction, but heterogeneity remained very serious or serious in these stratified analyses. Analyses stratified by length of follow-up showed a clinical pregnancy rate of 21% (95% CI 15% to 28%) at 6-12 month follow-up, and 21% (95% CI 16% to 28%) at follow-up of 17-months and longer. Heterogeneity was serious or very serious for all follow-up intervals.

Potential harms of tubal catheterisation or cannulation

Very low quality evidence from 31 case series studies showed an ectopic pregnancy rate of 2% (95% CI 1% to 2%) following tubal catheterisation or cannulation.

Very low quality evidence from 22 case series studies showed a miscarriage rate of 4% (95% CI 3% to 5%) following tubal catheterisation or cannulation.

Very low quality evidence from 24 case series studies showed a tubal perforation rate of 2% (95% CI 1% to 3%) during tubal catheterisation or cannulation.

Economic evidence

A total of 130 studies were identified in the health economic literature search for this review question. After duplicates were removed, 103 studies were sifted on title and abstract, of which were excluded at this stage.

Included studies

A systematic review of the economic literature was conducted but no economic studies were identified which were applicable to this review question.

Also see the literature search strategy in appendix B and the economic study selection flow chart in appendix G.

Excluded studies

Economic studies not included in this review are listed, and reasons for their exclusion are provided in appendix J.

Economic model

No economic modelling was undertaken for this review because the committee agreed that other topics were higher priorities for economic evaluation.

Unit costs

Table 3: Unit costs

Resource	Unit costs	Source
Tubal cannulation	£850	https://www.rbmojournal.com/article/S1472-6483(10)60362-8/pdf

The committee's discussion and interpretation of the evidence

The outcomes that matter most

Live birth and clinical pregnancy were prioritised as critical outcomes by the committee. They were selected as the best indicators of fertility and were specified in the core outcome set for fertility research (Duffy 2020).

Ectopic pregnancies, miscarriage, and tubal perforations were identified as important outcomes by the committee. Ectopic pregnancy and miscarriage were prioritised as important outcomes as they provide meaningful information about the success of a pregnancy and can have a significant impact on the woman's psychological and physical health. The committee prioritised tubal perforations as an important outcome as it is necessary when discussing and deciding on whether to undertake tubal catheterisation/cannulation that risks are considered and weighed up against potential benefits.

The quality of the evidence

The quality of evidence was assessed using modified GRADE methodology. The evidence was very low quality due to risk of bias (e.g. arising from issues with the selection of participants into the studies, outcome measurement, and reporting of results and setting), inconsistency (heterogeneity unexplained by subgroup analysis), and imprecision due to small number of events.

Benefits and harms

The committee considered the evidence for the potential benefits of fallopian tube catheterisation for people with proximal tubal obstruction and noted that although the evidence was non-comparative and very low quality, there was some benefit of tubal catheterisation. For instance, for people with bilateral obstruction, who would not be able to conceive without the procedure, a live birth rate of 16% and clinical pregnancy rate of 19% could be considered as an appreciable potential benefit.

However, the committee noted the considerable heterogeneity associated with the live birth and clinical pregnancy rates, which remained when analyses were stratified by bilateral or unilateral obstruction, or by length of follow-up. The committee agreed that although tubal catheterisation appeared to offer some benefit, the magnitude of this effect was uncertain. The committee also discussed that in clinical practice, IVF was often offered to people with proximal tubal obstruction, and without comparative trials comparing this procedure to alternative treatments, it was difficult to make a strong recommendation for tubal catheterisation.

The committee highlighted that the evidence on potential harms associated with tubal catheterisation was more consistent, and the rate of tubal perforation was consistent with it being a fairly safe surgical procedure. The committee reflected that the ectopic pregnancy rate was in line with their clinical knowledge and experience given that those with complete or partial proximal tubal obstruction have a higher risk of ectopic pregnancy than the general population. The committee also noted that the miscarriage rate associated with tubal catheterisation was not higher, and may be lower, than miscarriage rates associated with other fertility treatments.

The committee discussed that for some patients tubal catheterisation may be the preferred treatment option, particularly where there might be religious or other objections to IVF, or where IVF might not be expected to have a significantly higher success rate relative to spontaneous conception as in the case of those with diminished ovarian reserve.

Given the uncertainties around the potential benefits, the better evidence for a lack of harm, and the importance of patient preference and shared decision making, the committee agreed that fallopian tube catheterisation should be considered for those with proximal tubal obstruction. However, this should be in the context of a full treatment discussion that includes tubal catheterisation but also covers the anticipated relative risks and benefits of other fertility treatments including IVF.

Cost effectiveness and resource use

No economic evidence was identified for this review question; therefore, the committee made a qualitative assessment on the cost effectiveness of their recommendations.

The committee noted that tubal catheterisation/cannulation for proximal tubal obstruction has become less common in clinical practice as IVF has become more common. Nevertheless, with some evidence of benefit they believed that it could be a cost-effective option for those who may not want IVF. The committee reasoned that a consider recommendation could be supported. The committee believe the recommendations are reflective of current practice and are not anticipated to result in a significant resource impact.

Recommendations supported by this evidence review

This evidence review supports recommendation 1.34.2.

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Appendices

Appendix A Review protocols

Review protocol for review question: What is the likelihood of spontaneous conception when tubal catheterisation/cannulation is used for the treatment of proximal tubal obstruction?

Table 4: Review protocol

ID	Field	Content
0.	PROSPERO registration number	CRD42023478568
1.	Review title	Likelihood of spontaneous conception when tubal catheterisation/cannulation is used for proximal tubal obstruction
2.	Review question	What is the likelihood of spontaneous conception when tubal catheterisation/cannulation is used for the treatment of proximal tubal obstruction?
3.	Objective	To determine the likelihood of spontaneous conception when tubal catheterisation/cannulation is used for proximal tubal obstruction
4.	Searches	The following databases will be searched (with no date restrictions): Clinical searches • Cochrane Central Register of Controlled Trials (CENTRAL) • Cochrane Database of Systematic Reviews (CDSR) • Embase • MEDLINE ALL • Epistemonikos Searches will be restricted by: • English language • Human studies

ID	Field	Content
		The guideline committee will decide whether and when to re-run the searches before final submission of the review to retrieve further studies for inclusion. The full search strategies for MEDLINE database will be published in the final review.
5.	Condition or domain being studied	Surgical interventions for female factor fertility problems
6.	Population	Inclusion: People undergoing tubal catheterisation/cannulation for the treatment of proximal tubal obstruction
7.	Intervention/Exposure/ Test	Tubal catheterisation/cannulation for the treatment of proximal tubal obstruction
8.	Comparator/Reference standard/Confounding factors	N/A
9.	Types of study to be included	• Systematic reviews of case series • Case series or arms from comparative studies Exclusion: Case series or arms from comparative studies with a sample size of less than 20 participants will be excluded
10.	Other exclusion criteria	• Language limitations: non-English language papers will be excluded (unless data can be obtained, and risk of bias assessed, from an existing systematic review) • Conference abstracts, dissertations and unpublished data will not be included unless the data can be extracted (and risk of bias assessed) from elsewhere (for instance, from an existing systematic review)
11.	Context	This guidance will fully update the following NICE guideline: Fertility problems: assessment and treatment (last updated 2017; CG156)
12.	Primary outcomes (critical outcomes)	• Live birth rate (spontaneous conception) as proportion of those who underwent tubal catheterisation/cannulation • Clinical pregnancy (spontaneous conception; intrauterine pregnancy) as proportion of those who underwent tubal catheterisation/cannulation
13.	Secondary outcomes (important outcomes)	• Ectopic pregnancy rate as proportion of those who underwent tubal catheterisation/cannulation • Miscarriage rate as proportion of those who underwent tubal catheterisation/cannulation • Tubal perforation rate as proportion of those who underwent tubal catheterisation/cannulation

ID	Field	Content
14.	Data extraction (selection and coding)	All references identified by the searches and from other sources will be uploaded into EPPI and de-duplicated. Titles and abstracts of the retrieved citations will be screened to identify studies that potentially meet the inclusion criteria outlined in the review protocol. Dual sifting will be performed on at least 10% of records; 90% agreement is required. Disagreements will be resolved via discussion between reviewers, and consultation with senior staff if necessary. Full versions of the selected studies will be obtained for assessment. Studies that fail to meet the inclusion criteria once the full version has been checked will be excluded at this stage. Each study excluded after checking the full version will be listed, along with the reason for its exclusion. A standardised form will be used to extract data from studies included after full-text review. The following data will be extracted: study details (reference, country where study was carried out, type and dates), participant characteristics (including age, duration of infertility, tubal disease laterality), inclusion and exclusion criteria, details of the tubal catheterisation or cannulation method, setting and follow-up, relevant outcome data and source of funding. One reviewer will extract relevant data into a standardised form, and this will be quality assessed by a senior reviewer.
15.	Risk of bias (quality) assessment	Quality assessment of individual studies will be performed using the following checklists: • ROBIS tool for systematic reviews • JBI checklist for case series The quality assessment will be performed by one reviewer and this will be quality assessed by a senior reviewer.
16.	Strategy for data synthesis	Depending on the availability of the evidence, the findings will be summarised narratively or quantitatively. Where possible, meta-analyses of proportions will be conducted using the metaprop function in the R software package. Data analysis will be conducted using the generalized linear mixed model (GLMM) (Lin and Chu, 2020). The outcomes will be reported as proportions with corresponding 95% confidence intervals, as well as statistical heterogeneity data (I2, τ2). Heterogeneity will be explored using planned subgroup analyses (outlined below). The overall confidence in the findings will be evaluated using an adaptation of the 'Grading of Recommendations Assessment, Development and Evaluation (GRADE) toolbox' developed by the international GRADE working group: http://www.gradeworkinggroup.org/ Due to the absence of minimally important differences for this review, imprecision will be judged based on optimal information size (number of events) and importance of outcomes will be assessed qualitatively during committee discussions and documented in the committee's discussion and interpretation of the evidence.
17.	Analysis of sub-groups	Evidence will be sub-grouped by the following: • Age (based on the mean age reported in the study): ○ ≤35 years

ID	Field	Content	
		○ >35 years • Laterality of proximal tubal occlusion: ○ Unilateral ○ Bilateral Where evidence is subgrouped the committee will consider on a case by case basis if separate recommendations should be made for distinct groups. Separate recommendations may be made where there is evidence of a differential effect of interventions in distinct groups. If there is a lack of evidence in one group, the committee will consider, based on their experience, whether it is reasonable to extrapolate and assume the interventions will have similar effects in that group compared with others.	
18.	Type and method of review	☐	Intervention
		☐	Diagnostic
		☐	Prognostic
		☐	Qualitative
		☐	Epidemiologic
		☐	Service Delivery
		☒	Other (please specify) Proportional (single-arm) meta-analysis
19.	Language	English	
20.	Country	England	
21.	Anticipated or actual start date	September 2023	
22.	Anticipated completion date	November 2024	
23.	Stage of review at time of this submission	Review stage	Started
		Preliminary searches	☐
		Piloting of the study selection process	☐

ID	Field	Content
		Formal screening of search results against eligibility criteria ☐ Data extraction ☐ Risk of bias (quality) assessment ☐ Data analysis ☐
24.	Named contact	5a. Named contact Guideline Development Team A 5b Named contact e-mail FertilityProblems@nice.org.uk 5e Organisational affiliation of the review Guideline Development Team A, Centre for Guidelines, National Institute for Health and Care Excellence (NICE)
25.	Review team members	• Senior Technical Analyst • Technical Analyst
26.	Funding sources/sponsor	This systematic review is being completed by NICE.
27.	Conflicts of interest	All guideline committee members and anyone who has direct input into NICE guidelines (including the evidence review team and expert witnesses) must declare any potential conflicts of interest in line with NICE's code of practice for declaring and dealing with conflicts of interest. Any relevant interests, or changes to interests, will also be declared publicly at the start of each guideline committee meeting. Before each meeting, any potential conflicts of interest will be considered by the guideline committee Chair and a senior member of the development team. Any decisions to exclude a person from all or part of a meeting will be documented. Any changes to a member's declaration of interests will be recorded in the minutes of the meeting. Declarations of interests will be published with the final guideline.
28.	Collaborators	Development of this systematic review will be overseen by an advisory committee who will use the review to inform the development of evidence-based recommendations in line with section 3 of Developing NICE guidelines: the manual. Members of the guideline committee are available on the NICE website: https://www.nice.org.uk/guidance/indevelopment/gid-ng10263

ID	Field	Content	
29.	Other registration details	None	
30.	Reference/URL for published protocol	crd.york.ac.uk/PROSPERO/display_record.php?RecordID=478568	
31.	Dissemination plans	NICE may use a range of different methods to raise awareness of the guideline. These include standard approaches such as: • notifying registered stakeholders of publication • publicising the guideline through NICE's newsletter and alerts • issuing a press release or briefing as appropriate, posting news articles on the NICE website, using social media channels, and publicising the guideline within NICE.	
32.	Keywords	Tubal infertility, tubal occlusion, tubal surgery, natural conception, tubal catheterisation, tubal cannulation	
33.	Details of existing review of same topic by same authors	None	
34.	Current review status	☐	Ongoing
		☒	Completed but not published
		☐	Completed and published
		☐	Completed, published and being updated
		☐	Discontinued
35.	Additional information	None	
36.	Details of final publication	www.nice.org.uk	

CDSR: Cochrane Database of Systematic Reviews; CENTRAL: Cochrane Central Register of Controlled Trials; CINAHL: Cumulative Index to Nursing and Allied Health Literature; GRADE: Grading of Recommendations Assessment, Development and Evaluation; INAHTA: International Health Technology Assessment database; JBI: The Joanna Briggs Institute Checklist; MEDLINE: Medical Literature Analysis and Retrieval System Online; N/A: not applicable; NICE: National Institute for Health and Care Excellence; PsycINFO: Psychological Information Database; ROBIS: risk of bias in systematic reviews

Appendix B Literature search strategies

Literature search strategies for review question: What is the likelihood of spontaneous conception when tubal catheterisation/cannulation is used for the treatment of proximal tubal obstruction?

Database: MEDLINE ALL <1946 to December 18, 2023>

Date of last search: 19/12/2023

#	Searches
1	infertility, female/ or Infertility/ or fertility/
2	((tube? or tubal*) adj4 (infertil* or subfertil* or fertil* or factor?)).tw,kf.
3	exp Fallopian Tube Diseases/
4	Pelvic Inflammatory Disease/
5	Fallopian Tubes/
6	((fallopian or uter* or proximal) adj4 (tube? or tubal*) adj4 (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*)).tw,kf.
7	((peritubal* or oviduct* or cornual) adj4 (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*)).tw,kf.
8	(hydrosalpin* or hydro-salpin* or salpingiti*).tw,kf.
9	or/1-8
10	Catheters/ or Catheterization/ or (catheter* or microcatheter*).tw,kf.
11	cannula/ or (cannula* or re-canali* or recanali*).tw,kf.
12	10 or 11
13	9 and 12
14	letter/
15	editorial/
16	news/
17	exp historical article/
18	Anecdotes as topic/
19	comment/
20	case reports/
21	(letter or comment*).ti.
22	or/14-21
23	randomized controlled trial/ or random*.ti,ab.
24	22 not 23
25	animals/ not humans/
26	exp Animals, Laboratory/
27	exp Animal Experimentation/
28	exp Models, Animal/
29	exp Rodentia/
30	(rat or rats or rodent* or mouse or mice).ti.
31	or/24-30
32	13 not 31
33	limit 32 to english language

Database: Embase <1974 to 2023 December 18>

Date of last search: 19/12/2023

#	Searches
1	fertility/ or infertility/ or female fertility/ or subfertility/ or female subfertility/
2	((tube? or tubal*) adj4 (infertil* or subfertil* or fertil* or factor?)).tw,kf.
3	exp uterine tube disease/

#	Searches
4	pelvic inflammatory disease/
5	uterine tube/ or Fallopian tube/
6	((fallopian or uter* or proximal) adj4 (tube? or tubal*) adj4 (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*)).tw,kf.
7	((peritubal* or oviduct* or cornual) adj4 (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*)).tw,kf.
8	(hydrosalpin* or hydro-salpin* or salpingiti*).tw,kf.
9	or/1-8
10	catheter/ or microcatheter/ or hysterosalpingogram catheter/ or intrauterine catheter/ or "gynecological and obstetric catheter"/
11	balloon catheter/ or foley balloon catheter/ or intrauterine balloon/
12	(catheter* or microcatheter*).tw,kf.
13	cannula/ or cannulation/ or uterine cannula/ or uterine suction cannula/
14	(cannula* or re-canali* or recanali*).tw,kf.
15	or/10-14
16	9 and 15
17	letter.pt. or letter/
18	note.pt.
19	editorial.pt.
20	case report/ or case study/
21	(letter or comment*).ti.
22	or/17-21
23	randomized controlled trial/ or random*.ti,ab.
24	22 not 23
25	animal/ not human/
26	nonhuman/
27	exp Animal Experiment/
28	exp Experimental Animal/
29	animal model/
30	exp Rodent/
31	(rat or rats or rodent* or mouse or mice).ti.
32	or/24-31
33	16 not 32
34	limit 33 to english language
35	(conference abstract* or conference review or conference paper or conference proceeding).db,pt,su.
36	34 not 35

Database: Cochrane Database of Systematic Reviews, Issue 12 of 12, December 2023

Date of last search: 19/12/2023

#	Searches
1	MeSH descriptor: [Infertility, Female] this term only
2	MeSH descriptor: [Infertility] this term only
3	MeSH descriptor: [Fertility] this term only
4	((tube* or tubal*) near/4 (infertil* or subfertil* or fertil* or factor*)):ti,ab,kw
5	MeSH descriptor: [Fallopian Tube Diseases] explode all trees
6	MeSH descriptor: [Pelvic Inflammatory Disease] this term only
7	MeSH descriptor: [Fallopian Tubes] this term only
8	((fallopian or uter* or proximal) near/4 (tube* or tubal*) near/4 (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*)):ti,ab,kw

#	Searches
9	((peritubal* or oviduct* or cornual) near/4 (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*)):ti,ab,kw
10	(hydrosalpin* or (hydro NEXT salpin*) or salpingiti*):ti,ab,kw
11	{or #1-#10}
12	MeSH descriptor: [Catheters] this term only
13	MeSH descriptor: [Catheterization] this term only
14	(catheter* or microcatheter*):ti,ab,kw
15	MeSH descriptor: [Cannula] this term only
16	(cannula* or (re NEXT canali*) or recanali*):ti,ab,kw
17	{or #12-#16}
18	#11 AND #17
19	((clinicaltrials or trialsearch* or trial-registry or trials-registry or clinicalstudies or trialsregister* or trialregister* or trial-number* or studyregister* or study-register* or controlled-trials-com or current-controlled-trial or AMCTR or ANZCTR or ChiCTR* or CRiS or CTIS or CTRI* or DRKS* or EU-CTR* or EUCTR* or EUDRACT* or ICTRP or IRCT* or JAPIC* or JMCTR* or JRCT or ISRCTN* or LBCTR* or NTR* or ReBec* or REPEC* or RPCEC* or SLCTR or TCTR* or UMIN*):so or (ctgov or ictrp)):an
20	#18 NOT #19
21	"conference":pt
22	#20 not #21 in Cochrane Reviews

Database: Cochrane Central Register of Controlled Trials

Issue 11 of 12, November 2023

Date of last search: 19/12/2023

#	Searches
1	MeSH descriptor: [Infertility, Female] this term only
2	MeSH descriptor: [Infertility] this term only
3	MeSH descriptor: [Fertility] this term only
4	((tube* or tubal*) near/4 (infertil* or subfertil* or fertil* or factor*)):ti,ab,kw
5	MeSH descriptor: [Fallopian Tube Diseases] explode all trees
6	MeSH descriptor: [Pelvic Inflammatory Disease] this term only
7	MeSH descriptor: [Fallopian Tubes] this term only
8	((fallopian or uter* or proximal) near/4 (tube* or tubal*) near/4 (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*)):ti,ab,kw
9	((peritubal* or oviduct* or cornual) near/4 (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*)):ti,ab,kw
10	(hydrosalpin* or (hydro NEXT salpin*) or salpingiti*):ti,ab,kw
11	{or #1-#10}
12	MeSH descriptor: [Catheters] this term only
13	MeSH descriptor: [Catheterization] this term only
14	(catheter* or microcatheter*):ti,ab,kw
15	MeSH descriptor: [Cannula] this term only
16	(cannula* or (re NEXT canali*) or recanali*):ti,ab,kw
17	{or #12-#16}
18	#11 AND #17
19	((clinicaltrials or trialsearch* or trial-registry or trials-registry or clinicalstudies or trialsregister* or trialregister* or trial-number* or studyregister* or study-register* or controlled-trials-com or current-controlled-trial or AMCTR or ANZCTR or ChiCTR* or CRiS or CTIS or CTRI* or DRKS* or EU-CTR* or EUCTR* or EUDRACT* or ICTRP or IRCT* or JAPIC* or JMCTR* or JRCT or ISRCTN* or LBCTR* or NTR* or ReBec* or REPEC* or RPCEC* or SLCTR or TCTR* or UMIN*):so or (ctgov or ictrp)):an
20	#18 NOT #19

#	Searches
21	"conference":pt
22	#20 not #21 in Trials

Database: Epistemonikos

Date of last search: 19/12/2023

#	Searches
1	(((tube* OR tubal*) AND (infertil* OR subfertil* OR fertil* OR factor*)) OR ((fallopian OR uter* OR proximal) AND (tube* OR tubal*) AND (patholog* OR block* OR obstruct* OR occlu* OR fibros* OR damag* OR adhesion* OR disten* OR malform* OR abnormal* OR spasm* OR polyp* OR plug* OR infect* OR scar* OR inflam* OR disease* OR lesion*)) OR ((peritubal* OR oviduct* OR cornual) AND (patholog* OR block* OR obstruct* OR occlu* OR fibros* OR damag* OR injur* OR adhesion* OR disten* OR malform* OR abnormal* OR spasm* OR polyp* OR plug* OR infect* OR scar* OR inflam* OR disease* OR lesion*)) OR hydrosalpin* OR hydro-salpin* OR (hydro AND salpin*) OR salpingiti*)
2	(catheter* OR microcatheter* OR cannula*))
3	1 AND 2

Health Economic Literature Search Strategies

Database: MEDLINE ALL <1946 to December 18, 2023>

Date of last search: 19/12/2023

#	Searches
1	infertility, female/ or Infertility/ or fertility/
2	((tube? or tubal*) adj4 (infertil* or subfertil* or fertil* or factor?)).tw,kf.
3	exp Fallopian Tube Diseases/
4	Pelvic Inflammatory Disease/
5	Fallopian Tubes/
6	((fallopian or uter* or proximal) adj4 (tube? or tubal*) adj4 (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*)).tw,kf.
7	((peritubal* or oviduct* or cornual) adj4 (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*)).tw,kf.
8	(hydrosalpin* or hydro-salpin* or salpingiti*).tw,kf.
9	or/1-8
10	Catheters/ or Catheterization/ or (catheter* or microcatheter*).tw,kf.
11	cannula/ or (cannula* or re-canali* or recanali*).tw,kf.
12	10 or 11
13	9 and 12
14	letter/
15	editorial/
16	news/
17	exp historical article/
18	Anecdotes as topic/
19	comment/
20	case reports/
21	(letter or comment*).ti.
22	or/14-21
23	randomized controlled trial/ or random*.ti,ab.
24	22 not 23
25	animals/ not humans/
26	exp Animals, Laboratory/
27	exp Animal Experimentation/
28	exp Models, Animal/

#	Searches
29	exp Rodentia/
30	(rat or rats or rodent* or mouse or mice).ti.
31	or/24-30
32	13 not 31
33	limit 32 to english language
34	Economics/
35	Value of life/
36	exp "Costs and Cost Analysis"/
37	exp Economics, Hospital/
38	exp Economics, Medical/
39	exp Resource Allocation/
40	Economics, Nursing/
41	Economics, Pharmaceutical/
42	exp "Fees and Charges"/
43	exp Budgets/
44	budget*.ti,ab.
45	cost*.ti,ab.
46	(economic* or pharmaco?economic*).ti,ab.
47	(price* or pricing*).ti,ab.
48	(financ* or fee or fees or expenditure* or saving*).ti,ab.
49	(value adj2 (money or monetary)).ti,ab.
50	resourc* allocat*.ti,ab.
51	(fund or funds or funding* or funded).ti,ab.
52	(ration or rations or rationing* or rationed).ti,ab.
53	ec.fs.
54	or/34-53
55	quality-adjusted life years/
56	sickness impact profile/
57	(quality adj2 (wellbeing or well being)).ti,ab.
58	sickness impact profile.ti,ab.
59	disability adjusted life.ti,ab.
60	(qal* or qtime* or qwb* or daly*).ti,ab.
61	(euroqol* or eq5d* or eq 5*).ti,ab.
62	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
63	(health utility* or utility score* or disutilit* or utility value*).ti,ab.
64	(hui or hui1 or hui2 or hui3).ti,ab.
65	(health* year* equivalent* or hye or hyes).ti,ab.
66	discrete choice*.ti,ab.
67	rosser.ti,ab.
68	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
69	(sf36* or sf 36* or short form 36* or shortform 36* or shortform36*).ti,ab.
70	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
71	(sf12* or sf 12* or short form 12* or shortform 12* or shortform12*).ti,ab.
72	(sf8* or sf 8* or short form 8* or shortform 8* or shortform8*).ti,ab.
73	(sf6* or sf 6* or short form 6* or shortform 6* or shortform6*).ti,ab.
74	or/55-73
75	33 and (54 or 74)

Database: Embase <1974 to 2023 December 18>

Date of last search: 19/12/2023

#	Searches
1	fertility/ or infertility/ or female fertility/ or subfertility/ or female subfertility/
2	((tube? or tubal*) adj4 (infertil* or subfertil* or fertil* or factor?)).tw,kf.
3	exp uterine tube disease/
4	pelvic inflammatory disease/
5	uterine tube/ or Fallopian tube/
6	((fallopian or uter* or proximal) adj4 (tube? or tubal*) adj4 (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*)).tw,kf.
7	((peritubal* or oviduct* or cornual) adj4 (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*)).tw,kf.
8	(hydrosalpin* or hydro-salpin* or salpingiti*).tw,kf.
9	or/1-8
10	catheter/ or microcatheter/ or hysterosalpingogram catheter/ or intrauterine catheter/ or "gynecological and obstetric catheter"/
11	balloon catheter/ or foley balloon catheter/ or intrauterine balloon/
12	(catheter* or microcatheter*).tw,kf.
13	cannula/ or cannulation/ or uterine cannula/ or uterine suction cannula/
14	cannula/ or (cannula* or re-canali* or recanali*).tw,kf.
15	or/10-14
16	9 and 15
17	letter.pt. or letter/
18	note.pt.
19	editorial.pt.
20	case report/ or case study/
21	(letter or comment*).ti.
22	or/17-21
23	randomized controlled trial/ or random*.ti,ab.
24	22 not 23
25	animal/ not human/
26	nonhuman/
27	exp Animal Experiment/
28	exp Experimental Animal/
29	animal model/
30	exp Rodent/
31	(rat or rats or rodent* or mouse or mice).ti.
32	or/24-31
33	16 not 32
34	limit 33 to english language
35	(conference abstract* or conference review or conference paper or conference proceeding).db,pt,su.
36	34 not 35
37	health economics/
38	exp economic evaluation/
39	exp health care cost/
40	exp fee/
41	budget/
42	funding/
43	resource allocation/
44	budget*.ti,ab.
45	cost*.ti,ab.
46	(economic* or pharmaco?economic*).ti,ab.
47	(price* or pricing*).ti,ab.
48	(financ* or fee or fees or expenditure* or saving*).ti,ab.

#	Searches
49	(value adj2 (money or monetary)).ti,ab.
50	resourc* allocat*.ti,ab.
51	(fund or funds or funding* or funded).ti,ab.
52	(ration or rations or rationing* or rationed).ti,ab.
53	or/37-52
54	quality adjusted life year/
55	"quality of life index"/
56	short form 12/ or short form 20/ or short form 36/ or short form 8/
57	sickness impact profile/
58	(quality adj2 (wellbeing or well being)).ti,ab.
59	sickness impact profile.ti,ab.
60	disability adjusted life.ti,ab.
61	(qal* or qtime* or qwb* or daly*).ti,ab.
62	(euroqol* or eq5d* or eq 5*).ti,ab.
63	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
64	(health utility* or utility score* or disutilit* or utility value*).ti,ab.
65	(hui or hui1 or hui2 or hui3).ti,ab.
66	(health* year* equivalent* or hye or hyes).ti,ab.
67	discrete choice*.ti,ab.
68	rosser.ti,ab.
69	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
70	(sf36* or sf 36* or short form 36* or shortform 36* or shortform36*).ti,ab.
71	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
72	(sf12* or sf 12* or short form 12* or shortform 12* or shortform12*).ti,ab.
73	(sf8* or sf 8* or short form 8* or shortform 8* or shortform8*).ti,ab.
74	(sf6* or sf 6* or short form 6* or shortform 6* or shortform6*).ti,ab.
75	or/54-74
76	36 and (53 or 75)

Database: INAHTA

Date of last search: 19/12/2023

#	Searches
1	"Infertility, Female"[mh]
2	"Infertility"[mh]
3	"Fertility"[mh]
4	((tube* or tubal*) AND (infertil* or subfertil* or fertil* or factor*))
5	"Fallopian Tube Diseases"[mhe]
6	"Pelvic Inflammatory Disease"[mh]
7	"Fallopian Tubes"[mh]
8	((fallopian or uter* or proximal) AND (tube* or tubal*) AND (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*))
9	((peritubal* or oviduct* or cornual) AND (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*))
10	(hydrosalpin* or hydro-salpin* or salpingiti*)
11	#10 OR #9 OR #8 OR #7 OR #6 OR #5 OR #4 OR #3 OR #2 OR #1
12	"Catheters"[mh]
13	"Catheterization"[mh]
14	(catheter* or microcatheter*)
15	"Cannula"[mh]
16	(cannula* or re-canali* or recanali*)
17	#16 OR #15 OR #14 OR #13 OR #12

#	Searches
18	#17 AND #11

Database: HTA via CRD

Date of last search: 19/12/2023

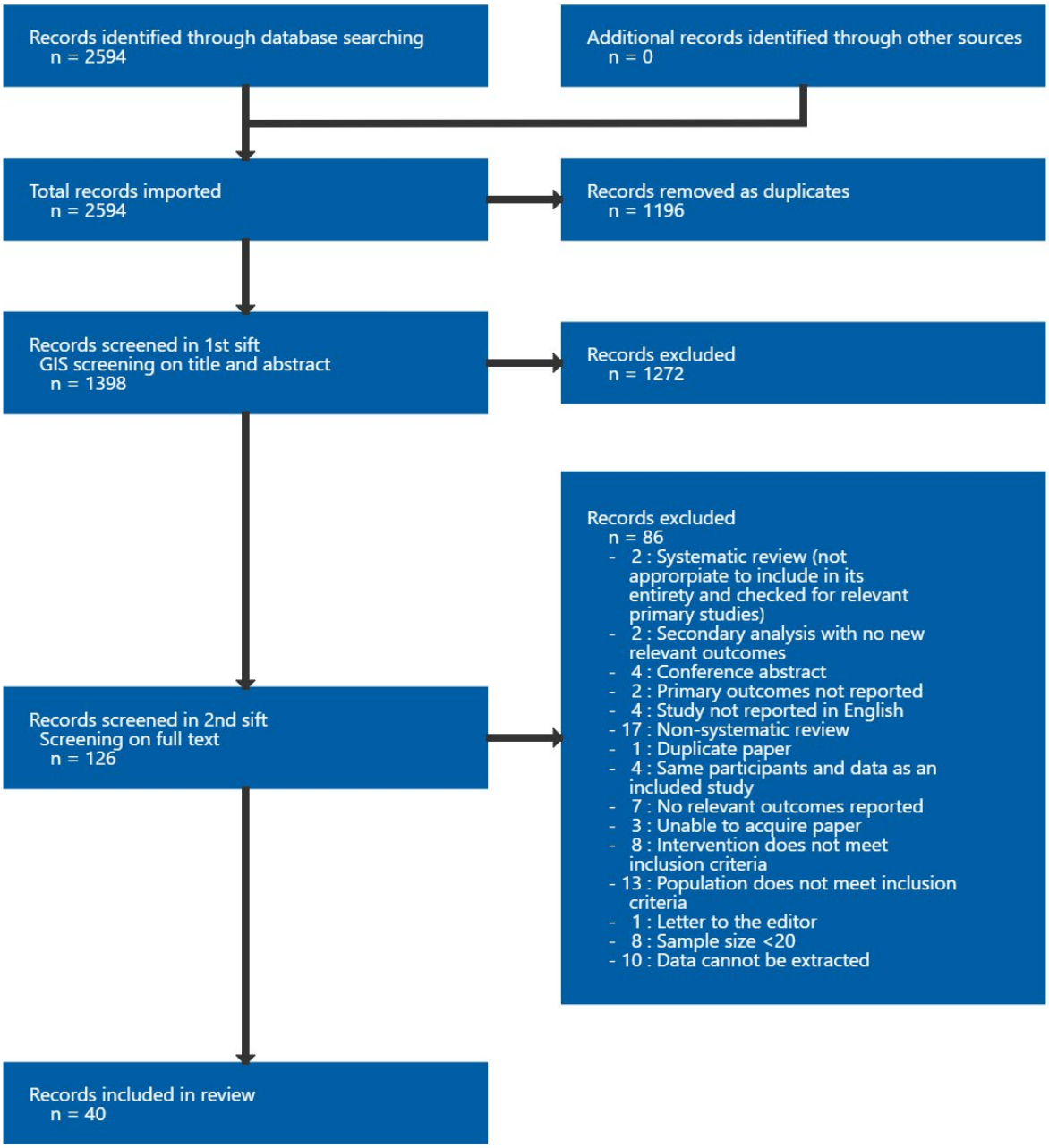
#	Searches
1	MESH DESCRIPTOR Infertility, Female
2	MESH DESCRIPTOR Infertility
3	MESH DESCRIPTOR Fertility
4	((tube* or tubal*) near4 (infertil* or subfertil* or fertil* or factor*))
5	MESH DESCRIPTOR Fallopian Tube Diseases EXPLODE ALL TREES
6	MESH DESCRIPTOR Pelvic Inflammatory Disease
7	MESH DESCRIPTOR Fallopian Tubes
8	((fallopian or uter* or proximal) near4 (tube* or tubal*) near4 (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*))
9	((peritubal* or oviduct* or cornual) near4 (patholog* or block* or obstruct* or occlu* or fibros* or damag* or injur* or adhesion* or disten* or malform* or abnormal* or spasm* or polyp* or plug* or infect* or scar* or inflam* or disease* or lesion*))
10	(hydrosalpin* or hydro-salpin* or salpingiti*)
11	#1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10
12	MESH DESCRIPTOR Catheters
13	MESH DESCRIPTOR Catheterization
14	(catheter* or microcatheter*)
15	MESH DESCRIPTOR Cannula
16	(cannula* or re-canali* or recanali*)
17	#12 or #13 or #14 or #15 or #16
18	#11 AND #17 IN HTA

Appendix C Case series evidence study selection

Study selection for: What is the likelihood of spontaneous conception when tubal catheterisation/cannulation is used for the treatment of proximal tubal obstruction?

Clinical search

Figure 1: Study selection flowchart



Appendix D Evidence tables

Evidence tables for: What is the likelihood of spontaneous conception when tubal catheterisation/cannulation is used for the treatment of proximal tubal obstruction?

Please refer to Supplement I Evidence tables for tubal catheterisation .

Appendix E Forest plots

Forest plots for review question: What is the likelihood of spontaneous conception when tubal catheterisation/cannulation is used for the treatment of proximal tubal obstruction?

Figure 2: Live birth (spontaneous conception) as proportion of those who underwent tubal catheterisation/cannulation

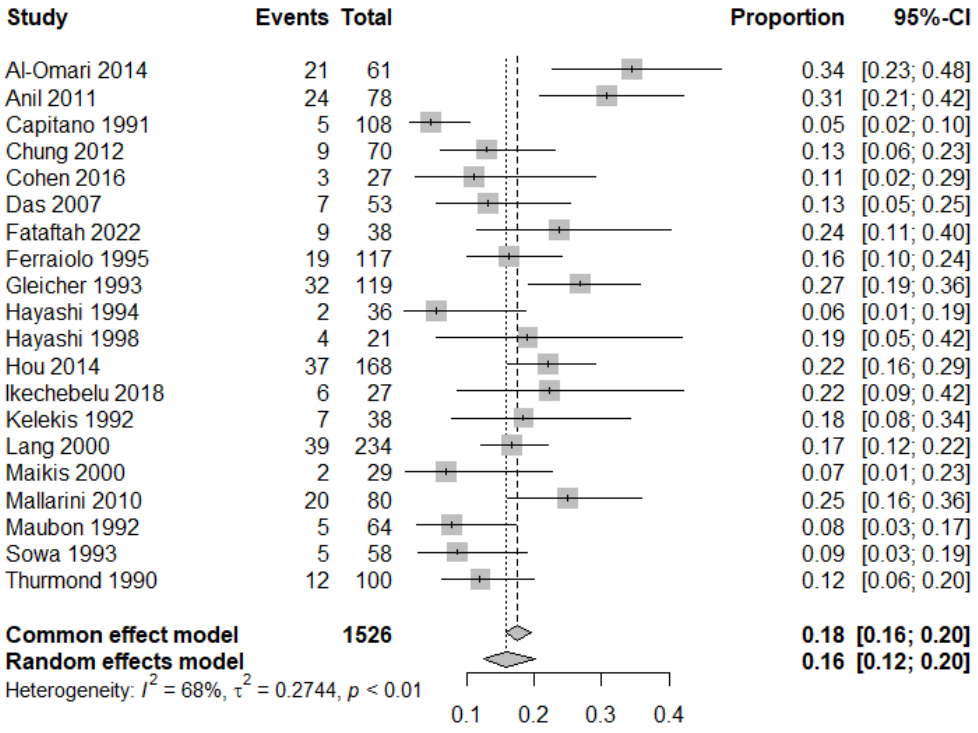


Figure 3: Live birth (spontaneous conception) as proportion of those who underwent tubal catheterisation/cannulation; bilateral subgroup

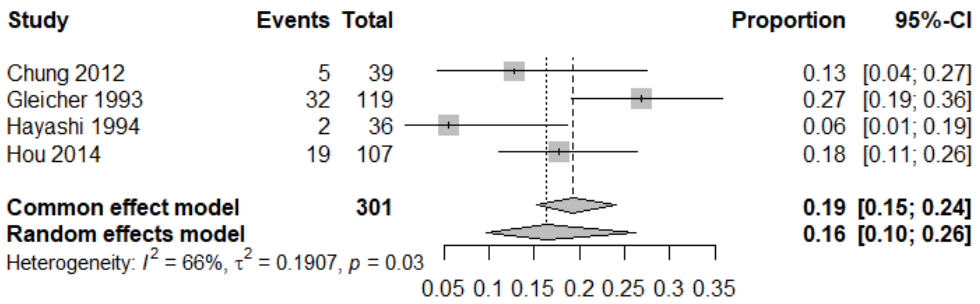


Figure 4: Live birth (spontaneous conception) as proportion of those who underwent tubal catheterisation/cannulation; unilateral subgroup

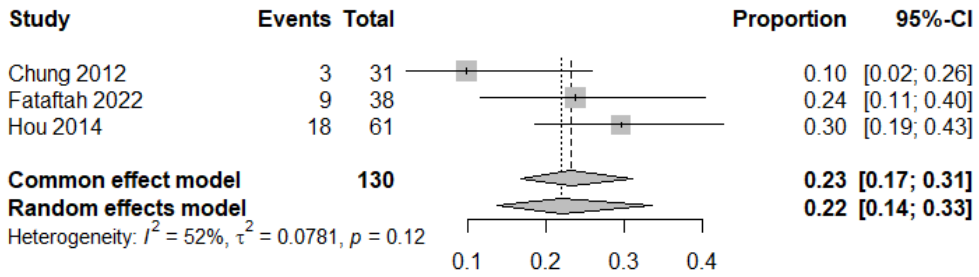


Figure 5: Live birth (spontaneous conception) as proportion of those who underwent tubal catheterisation/cannulation; pregnancies within 6 months following the procedure

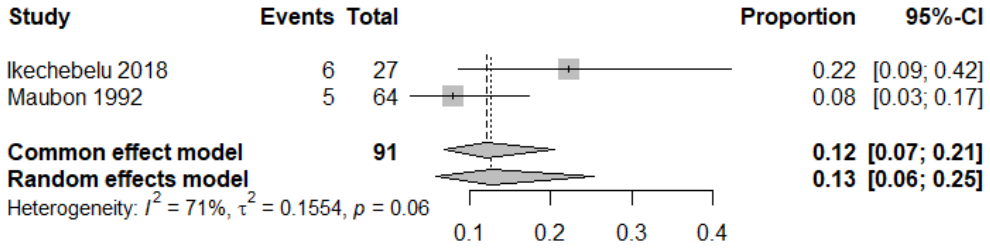


Figure 6: Live birth (spontaneous conception) as proportion of those who underwent tubal catheterisation/cannulation; pregnancies within 12 months following the procedure

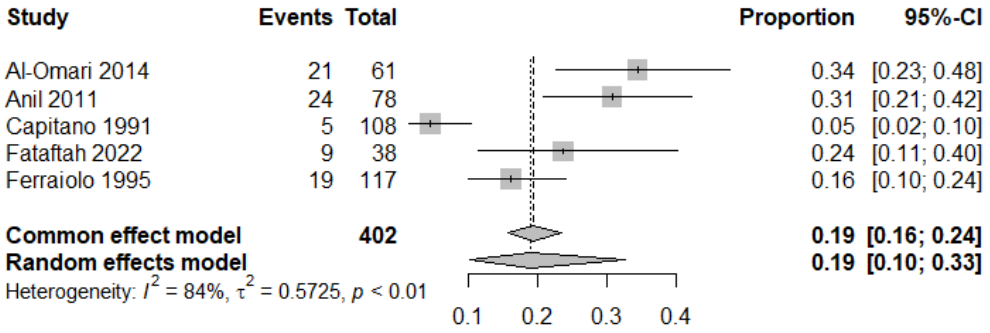


Figure 7: Live birth (spontaneous conception) as proportion of those who underwent tubal catheterisation/cannulation; pregnancies ≥24-months following procedure

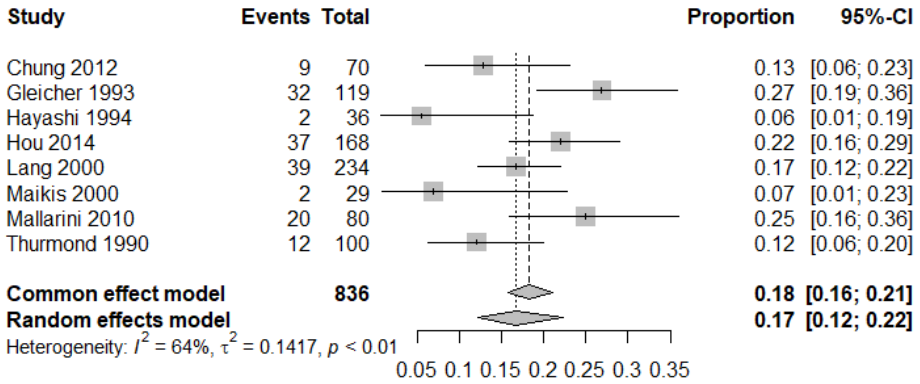


Figure 8: Clinical pregnancy (spontaneous conception; intrauterine pregnancy) as proportion of those who underwent tubal catheterisation/cannulation

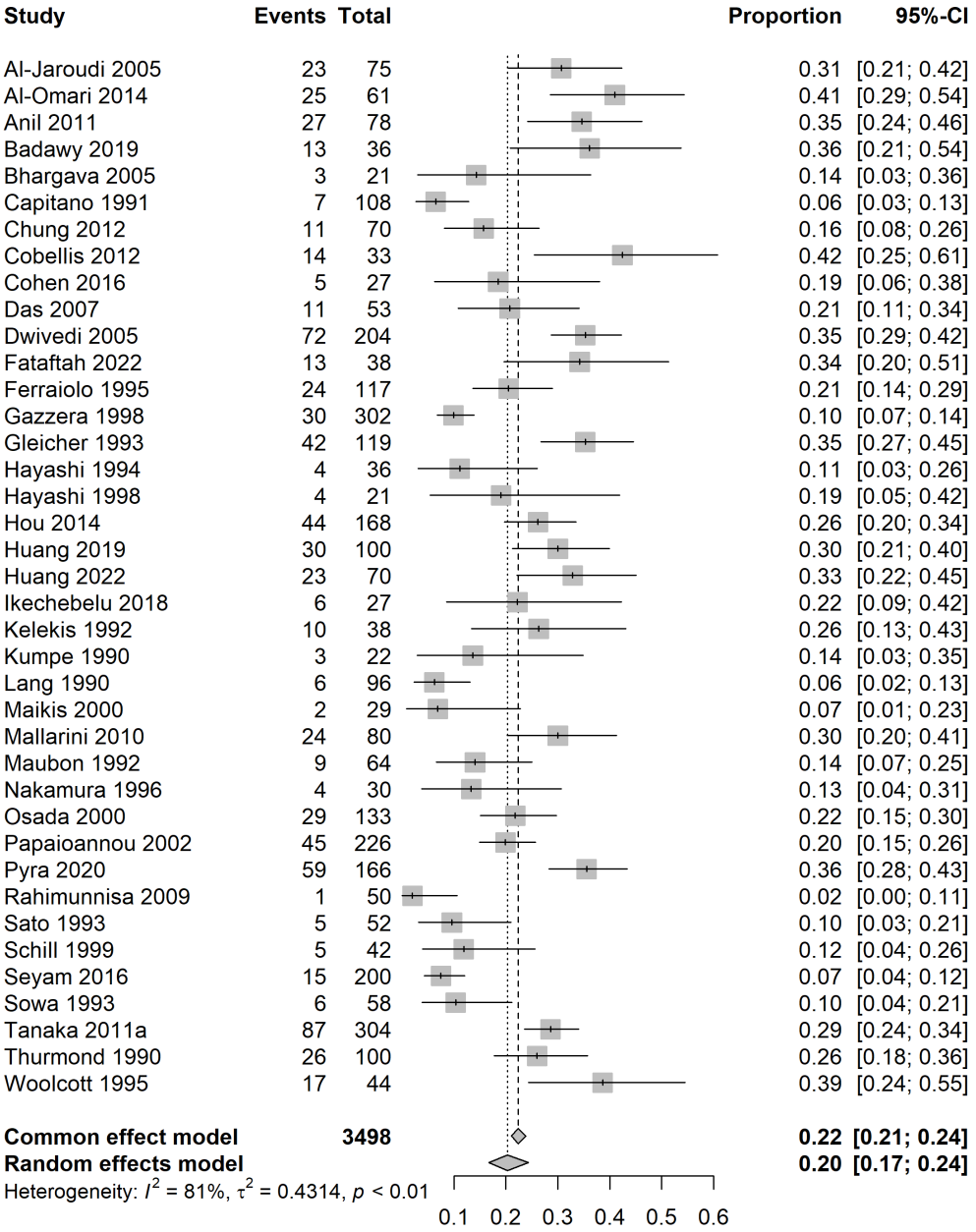


Figure 9: Clinical pregnancy (spontaneous conception; intrauterine pregnancy) as proportion of those who underwent tubal catheterisation/cannulation; bilateral subgroup

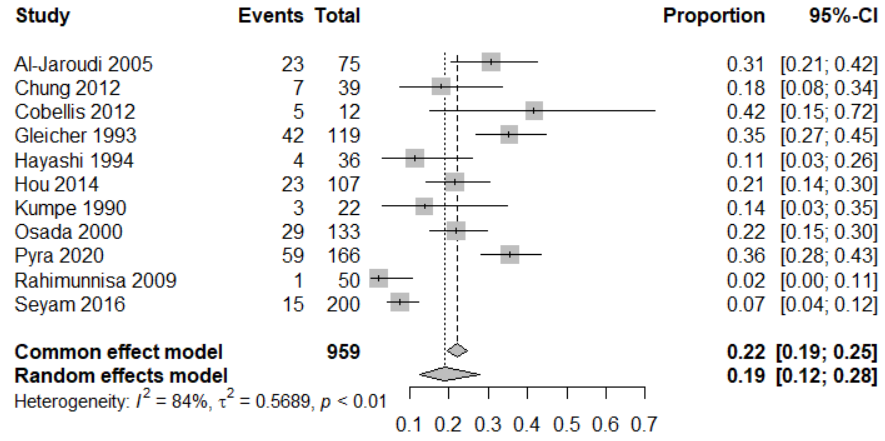


Figure 10: Clinical pregnancy (spontaneous conception; intrauterine pregnancy) as proportion of those who underwent tubal catheterisation/cannulation; unilateral subgroup

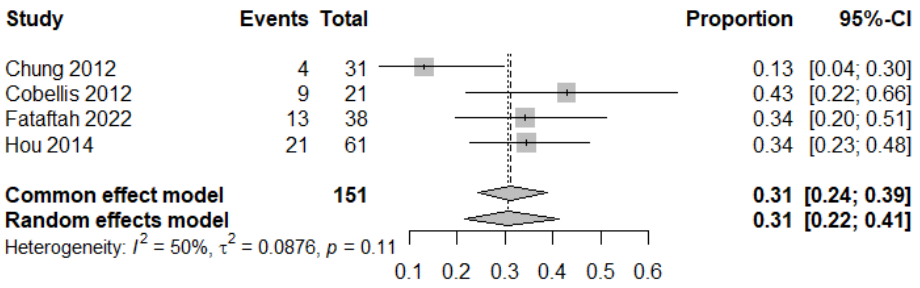


Figure 11: Clinical pregnancy (spontaneous conception; intrauterine pregnancy) as proportion of those who underwent tubal catheterisation/cannulation; 6-12 month follow-up

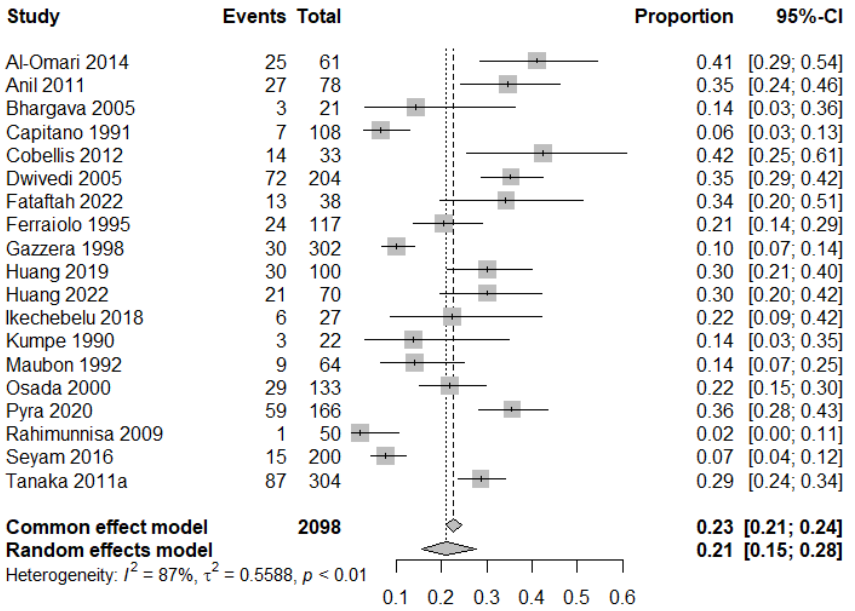


Figure 12: Clinical pregnancy (spontaneous conception; intrauterine pregnancy) as proportion of those who underwent tubal catheterisation/cannulation; ≥17 month follow-up

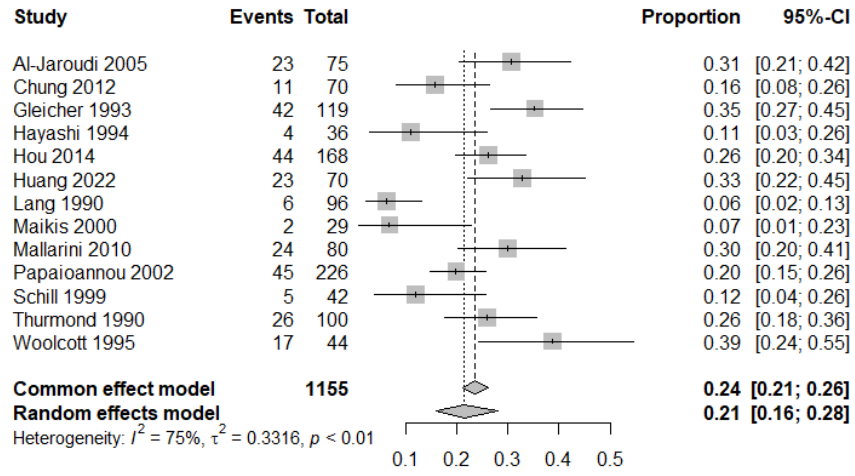


Figure 13: Ectopic pregnancy as proportion of those who underwent tubal catheterisation/cannulation

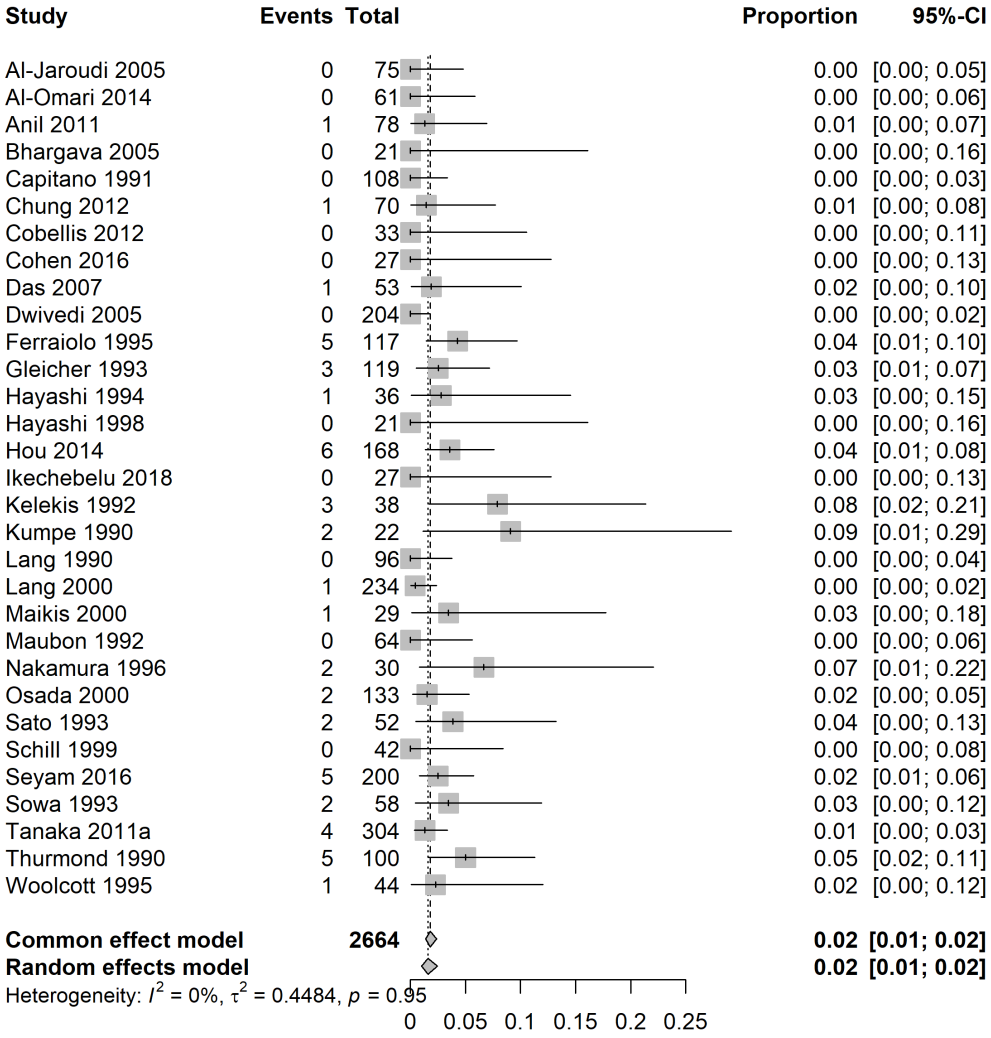


Figure 14: Miscarriage as proportion of those who underwent tubal catheterisation/cannulation

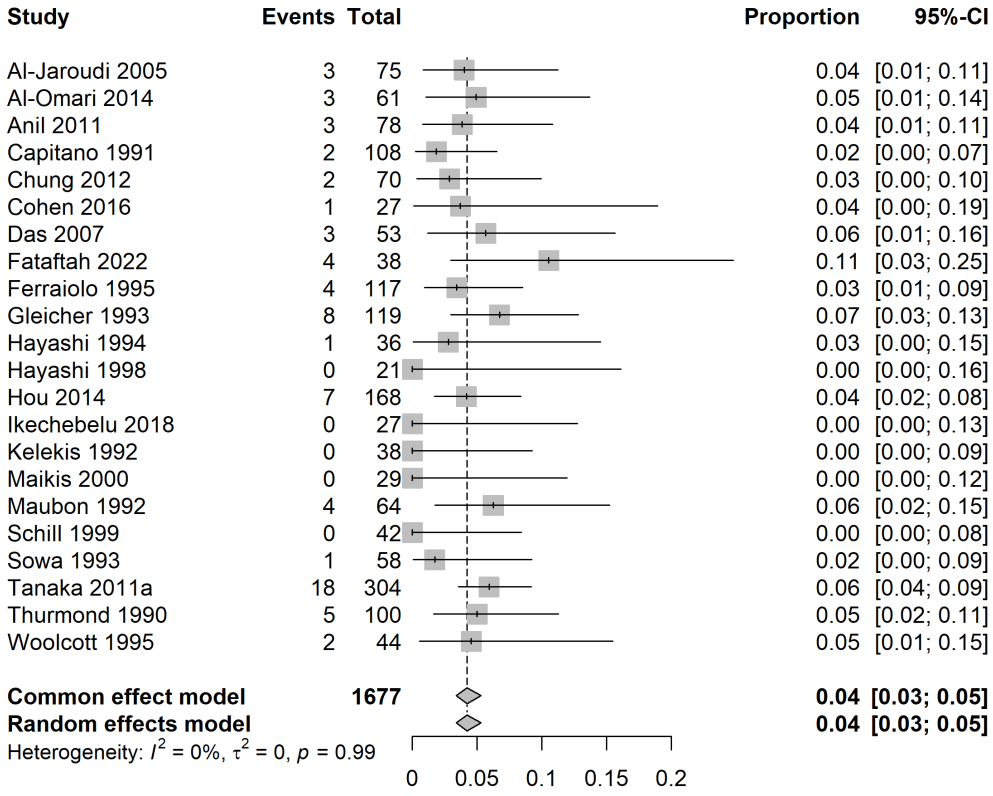
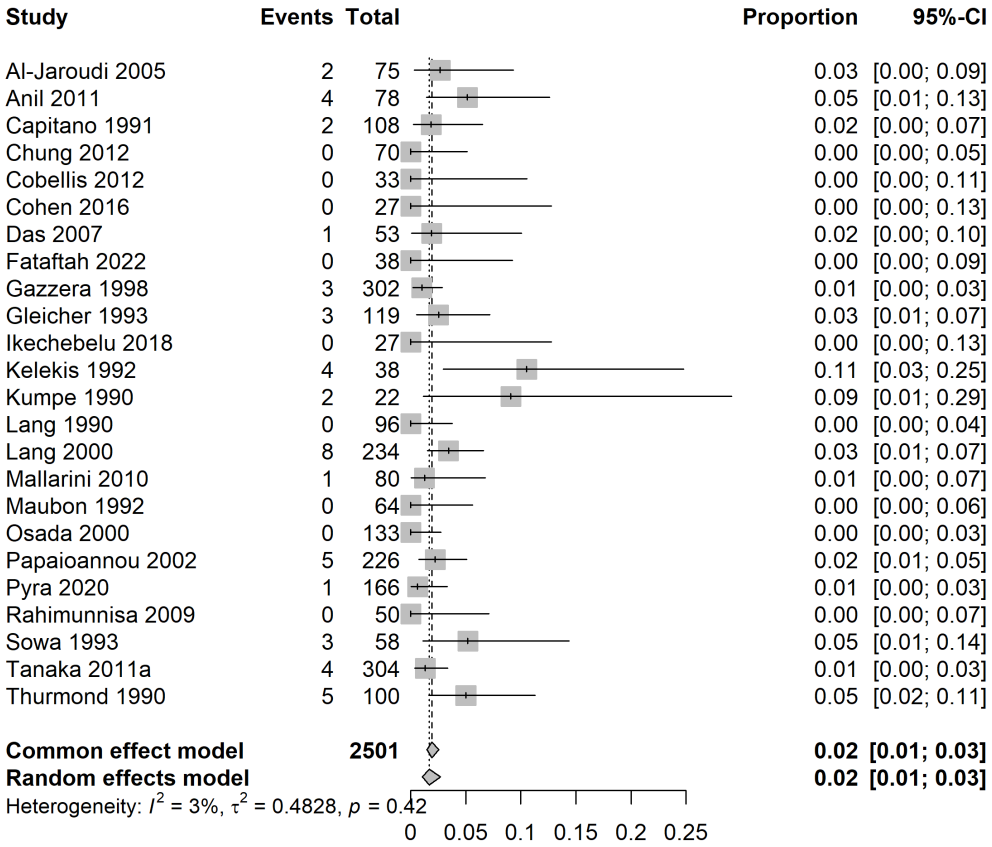


Figure 15: Tubal perforation as proportion of those who underwent tubal catheterisation/cannulation



Appendix F GRADE tables

GRADE tables for review question: What is the likelihood of spontaneous conception when tubal catheterisation/cannulation is used for the treatment of proximal tubal obstruction?

Table 5: Evidence profile for tubal catheterisation/cannulation

Quality assessment							No of events	Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations		Relative (REM; 95% CI)	Absolute		
Live birth (spontaneous conception) as proportion of those who underwent tubal catheterisation/cannulation											
20[1]	case series	very serious[2]	serious[3]	no serious indirectness	serious[4]	none	268/1526 (17.6%)	0.16 (0.12 to 0.20)	160 per 1000 (from 120 to 200 per 1000)	VERY LOW	CRITICAL
Live birth (spontaneous conception) as proportion of those who underwent tubal catheterisation/cannulation; bilateral subgroup											
4[5]	case series	serious[6]	serious[3]	no serious indirectness	very serious[7]	none	58/301 (19.3%)	0.16 (0.10 to 0.26)	160 per 1000 (from 100 to 260 per 1000)	VERY LOW	CRITICAL
Live birth (spontaneous conception) as proportion of those who underwent tubal catheterisation/cannulation; unilateral subgroup											
3[8]	case series	serious[6]	serious[3]	no serious indirectness	very serious[7]	none	30/130 (23.1%)	0.22 (0.14 to 0.33)	220 per 1000 (from 140 to 330 per 1000)	VERY LOW	CRITICAL
Live birth (spontaneous conception) as proportion of those who underwent tubal catheterisation/cannulation; pregnancies within 6 months following procedure											
2[9]	case series	serious[6]	serious[3]	no serious indirectness	very serious[7]	none	11/91 (12.1%)	0.13 (0.06 to 0.25)	130 per 1000 (from 60 to 250 per 1000)	VERY LOW	CRITICAL
Live birth (spontaneous conception) as proportion of those who underwent tubal catheterisation/cannulation; pregnancies within 12 months following the procedure											

5[10]	case series	serious[6]	very serious[11]	no serious indirectness	very serious[7]	none	78/402 (19.4%)	0.19 (0.10 to 0.33)	190 per 1000 (from 100 to 330 per 1000)	VERY LOW	CRITICAL
Live birth (spontaneous conception) as proportion of those who underwent tubal catheterisation/cannulation; pregnancies ≥24-months following the procedure											
8[12]	case series	serious[6]	serious[3]	no serious indirectness	serious[4]	none	153/836 (18.3%)	0.17 (0.12 to 0.22)	170 per 1000 (from 120 to 220 per 1000)	VERY LOW	CRITICAL
Clinical pregnancy (spontaneous conception; intrauterine pregnancy) as proportion of those who underwent tubal catheterisation/cannulation											
39[13]	case series	very serious[2]	very serious[11]	no serious indirectness	no serious imprecision	none	559/2687 (20.8)	0.20 (0.17 to 0.24)	200 per 1000 (from 170 to 240 per 1000)	VERY LOW	CRITICAL
Clinical pregnancy (spontaneous conception; intrauterine pregnancy) as proportion of those who underwent tubal catheterisation/cannulation; bilateral subgroup											
11[14]	case series	very serious[2]	very serious[11]	no serious indirectness	serious[4]	none	211/959 (22.0%)	0.19 (0.12 to 0.28)	190 per 1000 (from 120 to 280 per 1000)	VERY LOW	CRITICAL
Clinical pregnancy (spontaneous conception; intrauterine pregnancy) as proportion of those who underwent tubal catheterisation/cannulation; unilateral subgroup											
4[15]	case series	serious[6]	serious[3]	no serious indirectness	very serious[7]	none	47/151 (31.1%)	0.31 (0.22 to 0.41)	310 per 1000 (from 220 to 410 per 1000)	VERY LOW	CRITICAL
Clinical pregnancy (spontaneous conception; intrauterine pregnancy) as proportion of those who underwent tubal catheterisation/cannulation; 6-12 month follow-up											
19[16]	case series	very serious[2]	very serious[11]	no serious indirectness	no serious imprecision	none	475/2098 (22.6%)	0.21 (0.15 to 0.28)	210 per 1000 (from 150 to 280 per 1000)	VERY LOW	CRITICAL
Clinical pregnancy (spontaneous conception; intrauterine pregnancy) as proportion of those who underwent tubal catheterisation/cannulation; ≥17 month follow-up											
13[17]	case series	very serious[2]	serious[3]	no serious indirectness	serious[4]	none	272/1155 (23.5%)	0.21 (0.16 to 0.28)	210 per 1000 (from 160 to 280 per 1000)	VERY LOW	CRITICAL
Ectopic pregnancy as proportion of those who underwent tubal catheterisation/cannulation											

31[18]	case series	very serious[2]	no serious inconsistency	no serious indirectness	very serious[7]	none	35/1891 (1.9%)	0.02 (0.01 to 0.02)	20 per 1000 (from 10 to 20 per 1000)	VERY LOW	IMPORTANT
Miscarriage as proportion of those who underwent tubal catheterisation/cannulation											
22[19]	case series	very serious[2]	no serious inconsistency	no serious indirectness	very serious[7]	none	41/999 (4.1%)	0.04 (0.03 to 0.05)	40 per 1000 (from 30 to 50 per 1000)	VERY LOW	IMPORTANT
Tubal perforation as proportion of those who underwent tubal catheterisation/cannulation											
24[20]	case series	very serious[2]	no serious inconsistency	no serious indirectness	very serious[7]	none	39/1961 (2.0%)	0.02 (0.01 to 0.03)	20 per 1000 (from 10 to 30 per 1000)	VERY LOW	IMPORTANT

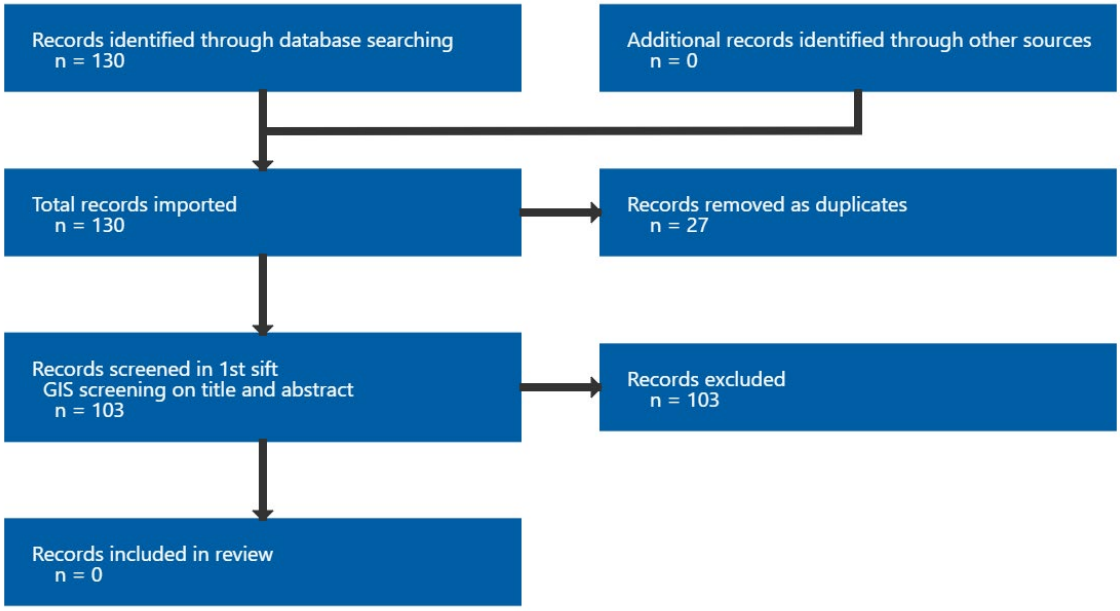
CI: confidence interval; JBI: The Joanna Briggs Institute Checklist; REM: random effects model
**See corresponding forest plot*
[1]Al-Omari 2014; Anil 2011; Capitano 1991; Chung 2012; Cohen 2016; Das 2007; Fataftah 2022; Ferraiolo 1995; Gleicher 1993; Hayashi 1994; Hayashi 1998; Hou 2014; Ikechebelu 2018; Kelekis 1992; Lang 2000; Maikis 2000; Mallarini 2010; Maubon 1992; Sowa 1993; Thurmond 1990
[2]Very serious risk of bias in the evidence contributing to the outcome as per JBI
[3] Serious heterogeneity unexplained by subgroup analysis
[4]<300-≥150 events
[5] Chung 2012; Gleicher 1993; Hayashi 1994; Hou 2014
[6]Serious risk of bias in the evidence contributing to the outcome as per JBI
[7]<150 events
[8] Chung 2012; Fataftah 2022; Hou 2014
[9] Ikechebelu 2018; Maubon 1992
[10] Al-Omari 2014; Anil 2011; Capitano 1991; Fataftah 2022; Ferraiolo 1995
[11] Very serious heterogeneity unexplained by subgroup analysis
[12] Chung 2012; Gleicher 1993; Hayashi 1994; Hou 2014; Lang 2000; Maikis 2000; Mallarini 2010; Thurmond 1990
[13] Al-Jaroudi 2005; Al-Omari 2014; Anil 2011; Badawy 2019; Bhargava 2005; Capitano 1991; Chung 2012; Cobellis 2012; Cohen 2016; Das 2007; Dwivedi 2005; Fataftah 2022; Ferraiolo 1995; Gazzera 1998; Gleicher 1993; Hayashi 1994; Hayashi 1998; Hou 2014; Huang 2019; Huang 2022; Ikechebelu 2018; Kelekis 1992; Kumpe 1990; Lang 2000; Maikis 2000; Mallarini 2010; Maubon 1992; Nakamura 1996; Osada 2000; Papaioannou 2002; Pyra 2020; Rahimunnisa 2009; Sato 1993; Schill 1999; Seyam 2016; Sowa 1993; Tanaka 2011a; Thurmond 1990; Woolcott 1995
[14] Al-Jaroudi 2005; Chung 2012; Cobellis 2012; Gleicher 1993; Hayashi 1994; Hou 2014; Kumpe 1990; Osada 2000; Pyra 2020; Rahimunnisa 2009; Seyam 2016
[15] Chung 2012; Cobellis 2012; Fataftah 2022; Hou 2014
[16] Al-Omari 2014; Anil 2011; Bhargava 2005; Capitano 1991; Cobellis 2012; Dwivedi 2005; Fataftah 2022; Ferraiolo 1995; Gazzera 1998; Huang 2019; Huang 2022; Ikechebelu 2018; Kumpe 1990; Maubon 1992; Osada 2000; Pyra 2020; Rahimunnisa 2009; Seyam 2016; Tanaka 2011a
[17] Al-Jaroudi 2005; Chung 2012; Gleicher 1993; Hayashi 1994; Hou 2014; Huang 2022; Lang 2000; Maikis 2000; Mallarini 2010; Papaioannou 2002; Schill 1999; Thurmond 1990; Woolcott 1995
[18] Al-Jaroudi 2005; Al-Omari 2014; Anil 2011; Bhargava 2005; Capitano 1991; Chung 2012; Cobellis 2012; Cohen 2016; Das 2007; Dwivedi 2005; Ferraiolo 1995; Gleicher 1993; Hayashi 1994; Hayashi 1998; Hou 2014; Ikechebelu 2018; Kelekis 1992; Kumpe 1990; Lang 1990; Lang 2000; Maikis 2000; Maubon 1992; Nakamura 1996; Osada 2000; Sato 1993; Schill 1999; Seyam 2016; Sowa 1993; Tanaka 2011a; Thurmond 1990; Woolcott 1995

[19] *Al-Jaroudi 2005; Al-Omari 2014; Anil 2011; Capitano 1991; Chung 2012; Cohen 2016; Das 2007; Fataftah 2022; Ferraiolo 1995; Gleicher 1993; Hayashi 1994; Hayashi 1998; Hou 2014; Ikechebelu 2018; Kelekis 1992; Maikis 2000; Maubon 1992; Schill 1999; Sowa 1993; Tanaka 2011a; Thurmond 1990; Woolcott 1995*
[20] *Al-Jaroudi 2005; Anil 2011; Capitano 1991; Chung 2012; Cobellis 2012; Cohen 2016; Das 2007; Fataftah 2022; Gazzera 1998; Gleicher 1993; Ikechebelu 2018; Kelekis 1992; Kumpe 1990; Lang 1990; Lang 2000; Mallarini 2010; Maubon 1992; Osada 2000; Papaioannou 2002; Pyra 2020; Rahimunnisa 2009; Sowa 1993; Tanaka 2011a; Thurmond 1990*

Appendix G Economic evidence study selection

Study selection for: What is the likelihood of spontaneous conception when tubal catheterisation/cannulation is used for the treatment of proximal tubal obstruction?

No health economic evidence was included in this review.



Appendix H Economic evidence tables

Economic evidence tables for review question: What is the likelihood of spontaneous conception when tubal catheterisation/cannulation is used for the treatment of proximal tubal obstruction?

No evidence was identified which was applicable to this review question.

Appendix I Economic model

Economic model for review question: What is the likelihood of spontaneous conception when tubal catheterisation/cannulation is used for the treatment of proximal tubal obstruction?

No economic analysis was conducted for this review question.

Appendix J Excluded studies

Excluded studies for review question: What is the likelihood of spontaneous conception when tubal catheterisation/cannulation is used for the treatment of proximal tubal obstruction?

Excluded case series studies

Table 5: Excluded studies and reasons for their exclusion

Study	Code [Reason]
Abdel-Aleem, H., Kamel, M.A., Hussein, M. et al. (2000) Hysteroscopic tubal cannulation for proximal tubal obstruction (PTO). Middle East Fertility Society Journal 5(2): 143-146	- No relevant outcomes reported
Al-Omari, Mamoon H, Obeidat, Nael, Elheis, Mwafiq et al. (2018) Factors Affecting Pregnancy Rate Following Fallopian Tube Recanalization in Women with Proximal Fallopian Tube Obstruction. Journal of clinical medicine 7(5)	- Same participants and data as an included study *Further analysis of Al-Omari 2014*
Anonymous (2003) Transcervical fallopian tube recanalization. Clinical privilege white paper: 1-8	- Unable to acquire paper
Anonymous (2012) Transcervical fallopian tube recanalization. Clinical privilege white paper: 1-13	- Unable to acquire paper
Breckenridge, J W and Schinfeld, J S (1991) Technique for US-guided fallopian tube catheterization. Radiology 180(2): 569-70	- Conference abstract
Burke (1994) Transcervical Tubal Catheterization Utilizing Flexible Hysteroscopy is an Effective Method of Treating Cornual Obstruction: A Review Of 120 Cases. The Journal of the American Association of Gynecologic Laparoscopists 1(4part2): 5	- Conference abstract
Cohen, S.B., Shapira, M., Baron, A. et al. (2019) Ultrasonography-guided hysteroscopic tubal catheterization of proximally occluded tubes - Reproductive outcomes. Clinical and Experimental Obstetrics and Gynecology 46(6): 872-875	- Data cannot be extracted *Spontaneous pregnancies combined with those conceived via IUI and not possible to extract disaggregated data*
Confino, E, Tur-Kaspa, I, DeCherney, A et al. (1990) Transcervical balloon tuboplasty. A multicenter study. JAMA 264(16): 2079-82	- Same participants and data as an included study *Same participants and data as Gleicher 1993, which has larger sample size and longer follow-up*
Darcy, M D, McClennan, B L, Picus, D et al. (1991) Transcervical salpingoplasty: current techniques and results. Urologic radiology 13(1): 74-9	- Non-systematic review
Das, K; Nagel, T C; Malo, J W (1995) Hysteroscopic cannulation for proximal tubal obstruction: a change for the better?. Fertility and sterility 63(5): 1009-15	- Data cannot be extracted *Pregnancies only reported for those with successful tubal recanalisation*

Study	Code [Reason]
De Silva, P M, Chu, J J, Gallos, I D et al. (2017) Fallopian tube catheterization in the treatment of proximal tubal obstruction: a systematic review and meta-analysis. Human reproduction (Oxford, England) 32(4): 836-852	- Systematic review (not approrpiate to include in its entirety and checked for relevant primary studies)
Dessole, S, Meloni, G B, Capobianco, G et al. (2000) A second hysterosalpingography reduces the use of selective technique for treatment of a proximal tubal obstruction. Fertility and sterility 73(5): 1037-9	- Sample size <20 *N=16 with proximal tubal obstruction after 2nd HSG*
Dunphy, B and Pattinson, H A (1994) Office falloposcopy; a tertiary level assessment for planning the management of infertile women. The Australian & New Zealand journal of obstetrics & gynaecology 34(2): 189-90	- No relevant outcomes reported
El-Kharoubi, Amin-Florin and Szasz, Florin (2023) Tubal Blockage Surgery: A Retrospective Cohort Study on Clinical Characteristics and Reproductive Outcomes Within Six Years. Cureus 15(6): e39879	- Intervention does not meet inclusion criteria *Intervention was either fimbriolysis or salpingostomy*
Feng, Yun, Zhao, Han, Xu, Hongxia et al. (2019) Analysis of pregnancy outcome after anastomosis of oviduct and its influencing factors. BMC pregnancy and childbirth 19(1): 393	- Intervention does not meet inclusion criteria *Laparoscopic oviduct anastomosis and tubal recanalisation for sterilisation reversal*
Fernstrom, I (1971) A new method for studying the motility of the Fallopian tubes. Acta obstetricia et gynecologica Scandinavica 50(2): 129-33	- Population does not meet inclusion criteria *Population did not have tubal obstruction*
Flood, J T and Grow, D R (1993) Transcervical tubal cannulation: a review. Obstetrical & gynecological survey 48(11): 768-76	- Non-systematic review
Forman, R G and Chapman, M G (1992) Therapeutic uses of transcervical catheterization of the fallopian tubes. British journal of obstetrics and gynaecology 99(3): 178-80	- Non-systematic review
Gao, T, Guo, D, Xu, M et al. (2015) A prospective study on indwelling suture in preventing re-adhesion of fallopian tube after interventional recanalization. Chinese journal of radiology (china) 49(9): 675-678	- Study not reported in English
Gleicher, N and Karande, V (1996) The diagnosis and treatment of proximal tubal disease. Human reproduction (Oxford, England) 11(9): 1825-8	- Non-systematic review
Gleicher, N, Redding, L, Parrilli, M et al. (1994) Wire guide cannulation alone is no treatment of proximal tubal occlusion. Human reproduction (Oxford, England) 9(6): 1109-11	- Population does not meet inclusion criteria *All participants had already undergone unsuccessful attempts at recanalization by selective salpingography and are not comparable to other studies*
Golan, A and Tur-Kaspa, I (1996) The management of the infertile patient with proximal tube occlusion. Human reproduction (Oxford, England) 11(9): 1833-4	- Non-systematic review
Guerrero, R Q; Duran, A A; Ramos, R A (1972) Tubal catheterization: applications of a new	- Population does not meet inclusion criteria *Population does not have tubal obstruction*

Study	Code [Reason]
technique. American journal of obstetrics and gynecology 114(5): 674-8	
He, Chao and Ma, Xuanpeng (2015) Distal fallopian tube recanalization using ozone treatment: a clinical study in two hundred tubal obstruction Chinese patients. International journal of clinical and experimental medicine 8(2): 2958-61	- Population does not meet inclusion criteria *All participants have both distal and proximal tubal obstruction and may not be comparable to other studies*
Hepp, H; Korell, M; Strowitzki, T (1996) Proximal tubal obstruction--is there a best way to treat it?. Human reproduction (Oxford, England) 11(9): 1828-31	- Non-systematic review
Hercz, P; Vine, S J; Walker, S M (1994) Experience with transcervical fallopian tube catheterization. Fertility and sterility 61(3): 551-3	- Sample size <20
Honore, G.M.; Holden, A.E.C.; Schenken, R.S. (1999) Pathophysiology and management of proximal tubal blockage. Fertility and Sterility 71(5): 785-795	- Systematic review (not approrpiate to include in its entirety and checked for relevant primary studies)
Hou, HY, Chen, YQ, Chen, X et al. (2012) [Related factors associated with pelvic adhesion and its influence on fallopian tube recanalization in infertile patients]. Zhonghua fu chan ke za zhi 47(11): 823-8	- Study not reported in English
Houston, J G and Machan, L S (1998) Salpingitis isthmica nodosa: technical success and outcome of fluoroscopic transcervical fallopian tube recanalization. Cardiovascular and interventional radiology 21(1): 31-5	- Population does not meet inclusion criteria *Includes only a subgroup of those with proximal tubal obstruction and may not be comparable to other studies*
Hovsepian, DM, Bonn, J, Eschelman, DJ et al. (1994) Fallopian tube recanalization in an unrestricted patient population. Radiology 190(1): 137-40	- Population does not meet inclusion criteria *Not restricted to those with proximal obstruction and a significant proportion of participants underwent another procedure prior to the recanalisation*
Jansen, R P (1993) Medicine and surgery inside the fallopian tube. The Medical journal of Australia 158(12): 799-800	- Intervention does not meet inclusion criteria *Catheterisation for transfer of spermatozoa, oocytes or embryos, not for treatment of proximal tubal obstruction*
Jansen, R P and Anderson, J C (1987) Catheterisation of the fallopian tubes from the vagina. Lancet (London, England) 2(8554): 309-10	- No relevant outcomes reported
Jayakrishnan, K and Baheti, Sumeet N (2011) Laparoscopic tubal sterilization reversal and fertility outcomes. Journal of human reproductive sciences 4(3): 125-9	- Intervention does not meet inclusion criteria *Tubal sterilisation reversal via recanalisation*
Keltz, Martin, Brown, Emma C, Frishman, Gary N et al. (2022) Fluoroscopically-Guided Hysteroscopic Tubal Cannulation: A Procedure for Proximal Tubal Obstruction. JSLS : Journal of the Society of Laparoendoscopic Surgeons 26(4)	- Population does not meet inclusion criteria *All participants had already undergone unsuccessful attempts at recanalization by selective salpingography and are not comparable to other studies*
Knuttinen, M.-G.; Jajko, R.; Scoccia, B. (2014) Fluoroscopic tubal recanalization in tubal factor	- Non-systematic review

Study	Code [Reason]
related infertility. Seminars in Interventional Radiology 31(3): 269-271	
Kohi, Maureen P (2021) Interventional Radiologist's Approach to Fallopian Tube Recanalization. Techniques in vascular and interventional radiology 24(1): 100736	- Non-systematic review
Lang, E K and Dunaway, H H (1996) Recanalization of obstructed fallopian tube by selective salpingography and transvaginal bougie dilatation: outcome and cost analysis. Fertility and sterility 66(2): 210-5	- Same participants and data as an included study *Recruitment dates not reported but subsequent study by same group (Lang 2000) that recruited since 1988 and data would be consistent with overlapping populations between the 2 studies*
Lang, E.K. (1995) Transvaginal recanalization of occluded fallopian tubes. Minimally Invasive Therapy 4(3): 129-135	- Same participants and data as an included study *All data is captured in Lang 2000*
Li, S C, Liu, M N, Hu, X Z et al. (1994) Hysteroscopic tubal catheterization and hydrotubation for treatment of infertile women with tubal obstruction. Chinese medical journal 107(10): 790-3	- Intervention does not meet inclusion criteria *Includes hydrotubation with drugs for 3 months*
Lisse, K and Sydow, P (1991) Fallopian tube catheterization and recanalization under ultrasonic observation: a simplified technique to evaluate tubal patency and open proximally obstructed tubes. Fertility and sterility 56(2): 198-201	- Sample size <20
Liu, Can, Qiu, Hao, Huang, Rong et al. (2021) Therapeutic Mechanism and Clinical Observation of Traditional Chinese Medicine Combined with Interventional Recanalization for Tubal Infertility. Evidence-based complementary and alternative medicine : eCAM 2021: 2842250	- No relevant outcomes reported
Liu, W.-B.; Li, Q.-X.; He, X.-F. (2009) Clinical application of medical ozone in the interventional therapy for infertility caused by fallopian tube adhesion. International Journal of Ozone Therapy 8(2): 198-201	- Unable to acquire paper
Markham, S (1991) Cervico-utero-tubal factors in infertility. Current opinion in obstetrics & gynecology 3(2): 191-6	- Non-systematic review
Marlow, Joshua Antranig, Picus, Daniel, Gould, Jennifer et al. (2021) Outcomes after successful fallopian tube recanalization: A single institution experience: Observational Retrospective study. Clinical imaging 76: 70-73	- Data cannot be extracted *Only those with successful tubal recanalisation included in retrospective case series*
Maroulis, G B and Yeko, T R (1992) Treatment of cornual obstruction by transvaginal cannulation without hysteroscopy or fluoroscopy. Fertility and sterility 57(5): 1136-8	- Sample size <20
Matsubayashi, Hidehiko, Takaya, Yukiko, Takeuchi, Takumi et al. (2021) Falloposcopic tuboplasty: an	- Conference abstract

Study	Code [Reason]
easy, quick, and safe technique. Fertility and sterility 116(6): 1669-1672	
Mekaru, K, Yagi, C, Asato, K et al. (2011) Hysteroscopic tubal catheterization under laparoscopy for proximal tubal obstruction. Archives of gynecology and obstetrics 284(6): 1573-6	- Data cannot be extracted *Not possible to extract disaggregated spontaneous conception pregnancy rates (from pregnancies following IUI)*
Miyazaki, T, Kobayashi, T, Kuji, N et al. (1995) Evaluation of the radiologic findings on hysterosalpingography by selective hydrotubation with flexible hysterofiberscope. Journal of assisted reproduction and genetics 12(6): 369-74	- Population does not meet inclusion criteria *<80% of participants have proximal tubal obstruction (>20% have distal tubal obstruction)*
Mody, Priya; Salazar, Gloria; Kohi, Maureen P (2023) Recanalization of Proximal Fallopian Tube Obstruction in the Treatment of Infertility. Seminars in interventional radiology 40(4): 379-383	- Non-systematic review
Motta, EL, Nelson, J, Batzofin, J et al. (1995) Selective salpingography with an insemination catheter in the treatment of women with cornual fallopian tube obstruction. Human reproduction (Oxford, England) 10(5): 1156-9	- Intervention does not meet inclusion criteria *Participants were offered different conception strategies (e.g. IUI, timed intercourse, gamete intra-Fallopian transfer (GIFT)) based on semen analysis, female age, additional infertility factors, and/or failure to conceive spontaneously in first 6 months following tubal procedure*
Novy, M J, Thurmond, A S, Patton, P et al. (1988) Diagnosis of cornual obstruction by transcervical fallopian tube cannulation. Fertility and sterility 50(3): 434-40	- Sample size <20 *This paper essentially reports 2 case series using different techniques (fluoroscopic catheterisation with selective salpingography; and hysteroscopic cannulation) and N in each series is <20*
Papaioannou, Spyros, Afnan, Masood, Girling, Alan J et al. (2003) Diagnostic and therapeutic value of selective salpingography and tubal catheterization in an unselected infertile population. Fertility and sterility 79(3): 613-7	- Population does not meet inclusion criteria *Indirect population, only one third of women had proximal tubal obstruction and the results were not reported separately*
Papaioannou, Spyros, Afnan, Masoud, Girling, Alan J et al. (2003) The potential value of tubal perfusion pressures measured during selective salpingography in predicting fertility. Human reproduction (Oxford, England) 18(2): 358-63	- Secondary analysis with no new relevant outcomes
Papaioannou, Spyros, Afnan, Masoud, Girling, Alan J et al. (2002) The effect on pregnancy rates of tubal perfusion pressure reductions achieved by guide-wire tubal catheterization. Human reproduction (Oxford, England) 17(8): 2174-9	- Secondary analysis with no new relevant outcomes
Papaioannou, Spyros, Afnan, Masoud, McHugo, Josephine M et al. (2003) Modification of the coaxial technique for selective salpingography with measurement of tubal perfusion pressures. Human fertility (Cambridge, England) 6(2): 84-8	- No relevant outcomes reported
Papaioannou, Spyros; Afnan, Masoud; Sharif, Khaldoun (2004) The role of selective	- Non-systematic review

Study	Code [Reason]
salpingography and tubal catheterization in the management of the infertile couple. Current opinion in obstetrics & gynecology 16(4): 325-9	
Pennehouat, G, Risquez, F, Naouri, M et al. (1993) Transcervical falloposcopy: preliminary experience. Human reproduction (Oxford, England) 8(3): 445-9	- Population does not meet inclusion criteria *Only 45% had proximal obstruction (55% had distal obstruction)*
Pinto, Anil B M, Hovsepian, David M, Wattanakumtornkul, Saranya et al. (2003) Pregnancy outcomes after fallopian tube recanalization: oil-based versus water-soluble contrast agents. Journal of vascular and interventional radiology : JVIR 14(1): 69-74	- Data cannot be extracted *Only those with successful tubal recanalisation included in retrospective case series*
Ransom, MX and Garcia, AJ (1997) Surgical management of cornual-isthmic tubal obstruction. Fertility and sterility 68(5): 887-891	- No relevant outcomes reported
Rawal, N; Haddad, N; Abbott, G T (2005) Selective salpingography and fallopian tube recanalisation: experience from a district general hospital. Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology 25(6): 586-8	- Sample size <20
Raymond, C.A. (1988) Balloon catheterization in infertility clinic. JAMA : the journal of the American Medical Association 259(1): 16	- Sample size <20
Rosch, J; Thurmond, A S; Uchida, B T (1988) Diagnosis and treatment of fallopian tube obstruction with selective salpingography and catheter recanalization. Annales de radiologie 31(2): 123-6	- No relevant outcomes reported
Rosch, J, Thurmond, A S, Uchida, B T et al. (1988) Selective transcervical fallopian tube catheterization: technique update. Radiology 168(1): 1-5	- Data cannot be extracted *Paper does not report the number of participants that underwent tubal catheterisation (only the number of tubes)*
Sakumoto, T, Shinkawa, T, Izena, H et al. (1993) Treatment of infertility associated with endometriosis by selective tubal catheterization under hysteroscopy and laparoscopy. American journal of obstetrics and gynecology 169(3): 744-7	- Population does not meet inclusion criteria *Fertility problems associated with endometriosis rather than proximal tubal obstruction*
Shen, Huawei, Huang, Shikuan, Liu, Weifeng et al. (2023) Study on the efficacy and safety of fallopian tube interventional recanalization in the treatment of tubal obstructive infertility. Panminerva medica 65(2): 254-256	- Letter to the editor
Shinmoto, H. (1993) Evaluation of selective salpingography and recanalization. Japanese Journal of Clinical Radiology 38(9): 1045-1049	- Study not reported in English
Stern, J J; Peters, A J; Coulam, C B (1991) Transcervical tuboplasty under ultrasonographic guidance: a pilot study. Fertility and sterility 56(2): 359-60	- Sample size <20
Sun, Niuniu, Wei, Lequn, Chen, Diansen et al. (2017) Clinical observation of fallopian tube	- Data cannot be extracted

Study	Code [Reason]
obstruction recanalization by ozone. Pakistan journal of medical sciences 33(2): 290-294	*Exclusion criteria include those with re-occlusion or abortion*
Surrey, Adamson, Surrey et al. (1996) Introduction of a New Coaxial Falloposcopy System. The Journal of the American Association of Gynecologic Laparoscopists 3(4supplement): 48	- Conference abstract
Tanaka, A., Tanaka, I., Yamaguchi, T. et al. (2017) Development of a new tubal recanalization method using the combination of hysteroscope and laparoscope in the treatment of obstructed fallopian tubes. Gynecology and Minimally Invasive Therapy 6(4): 1-2	- Population does not meet inclusion criteria *The proportion with proximal tubal obstruction is unclear*
Tanaka, Yudai and Tajima, Hiroto (2011) Falloposcopic tuboplasty as an option for tubal infertility: an alternative to in vitro fertilization. Fertility and sterility 95(1): 441-3	- Data cannot be extracted *Pregnancies reported following natural intercourse and IUI combined, and disaggregated data for spontaneous conceptions not available*
Thompson, K A, Kiltz, R J, Koci, T et al. (1994) Transcervical fallopian tube catheterization and recanalization for proximal tubal obstruction. Fertility and sterility 61(2): 243-7	- Data cannot be extracted *Paper does not report the number of participants that underwent tubal catheterisation (only the number of tubes), and only reports pregnancy for those who had successful recanalisation*
Thurmond, A S (1998) Interventional radiology in the treatment of infertility: fallopian tube catheterization. Radiographics : a review publication of the Radiological Society of North America, Inc 18(4): 919-22	- Non-systematic review
Thurmond, A S; Burry, K A; Novy, M J (1995) Salpingitis isthmica nodosa: results of transcervical fluoroscopic catheter recanalization. Fertility and sterility 63(4): 715-22	- Population does not meet inclusion criteria *Includes only a subgroup of those with proximal tubal obstruction and may not be comparable to other studies*
Thurmond, A S, Machan, L S, Maubon, A J et al. (2000) A review of selective salpingography and fallopian tube catheterization. Radiographics : a review publication of the Radiological Society of North America, Inc 20(6): 1759-68	- Non-systematic review
Thurmond, A S, Rosch, J, Patton, P E et al. (1988) Fluoroscopic transcervical fallopian tube catheterization for diagnosis and treatment of female infertility caused by tubal obstruction. Radiographics : a review publication of the Radiological Society of North America, Inc 8(4): 621-40	- No relevant outcomes reported
Thurmond, A.S. (1991) Fallopian tube catheterization for improved diagnosis and treatment of proximal tubal obstruction. Minimally Invasive Therapy 1(1): 29-33	- Non-systematic review

Study	Code [Reason]
Thurmond, A.S. (2000) Fallopian tube recanalization. Seminars in Interventional Radiology 17(3): 303-308	- Non-systematic review
Vardhana, Pratibhasri A, Silberzweig, James E, Guarnaccia, Michael et al. (2009) Hysterosalpingography with selective salpingography. The Journal of reproductive medicine 54(3): 126-32	- No relevant outcomes reported *Pregnancy defined as biochemical test only*
Wadin, K, Lonnemark, M, Rasmussen, C et al. (1994) Frequency of proximal tubal obstruction in patients undergoing infertility evaluation. Acta radiologica (Stockholm, Sweden : 1987) 35(4): 357-60	- Intervention does not meet inclusion criteria *Intervention was hysterosalpingography only*
Wang, Jeffrey W, Rustia, Gabriella M, Wood-Molo, Mary et al. (2020) Conception rates after fluoroscopy-guided fallopian tubal cannulation: an alternative to in vitro fertilization for patients with tubal occlusion. Therapeutic advances in reproductive health 14: 2633494120954248	- Data cannot be extracted *Not possible to extract disaggregated spontaneous conceptions (from conceptions following IUI)*
Woolcott, R (1996) Proximal tubal occlusion: a practical approach. Human reproduction (Oxford, England) 11(9): 1831-3	- Non-systematic review
Zagoria, R J; Regan, S W; Dyer, R B (1991) Nonsurgical fallopian tube recanalization for treatment of infertility. North Carolina medical journal 52(10): 491-3	- Duplicate paper
Zagoria, R.J.; Regan, S.W.; Dyer, R.B. (1991) Nonsurgical fallopian tube recanalization for treatment of infertility. North Carolina medical journal 52(10): 491-493	- Non-systematic review
Zhang, Y J, Fan, H M, Huang, X M et al. (1993) Microsurgical recanalization of fallopian tubes after tubosterilization and its related factors. Report of 278 cases. Chinese medical journal 106(6): 433-6	- Intervention does not meet inclusion criteria *Intervention was reversal of tubosterilisation*
Zheng, RQ (2014) Clinical research on the treatment for oviduct obstruction by interventional technology under hysteroscope combining with enema with Chinese traditional medicine and physiotherapy. Dissertation for master degree of shandong university of traditional chinese medicine: 1-35	- Study not reported in English

Excluded economic studies

No economic evidence was identified for this review.

Appendix K Research recommendations – full details

Research recommendations for review question: What is the likelihood of spontaneous conception when tubal catheterisation/cannulation is used for the treatment of proximal tubal obstruction?

No research recommendations were made for this review question.